How Does *MY* Garden Grow: *The Education of a Gardener*

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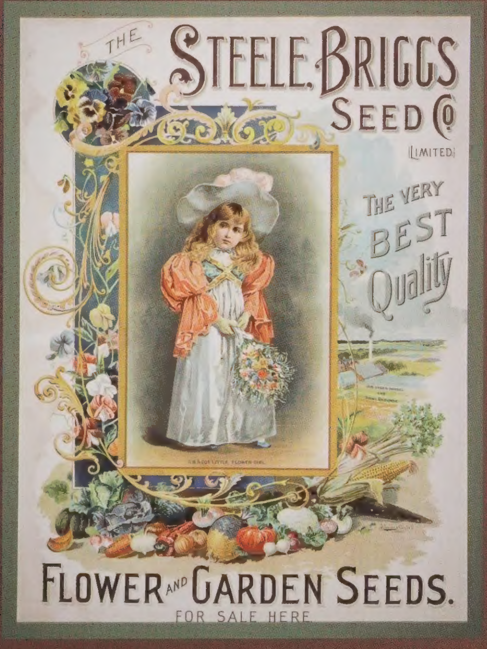
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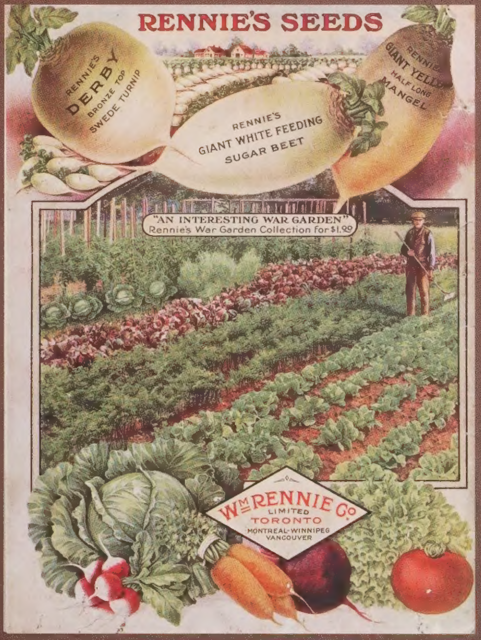
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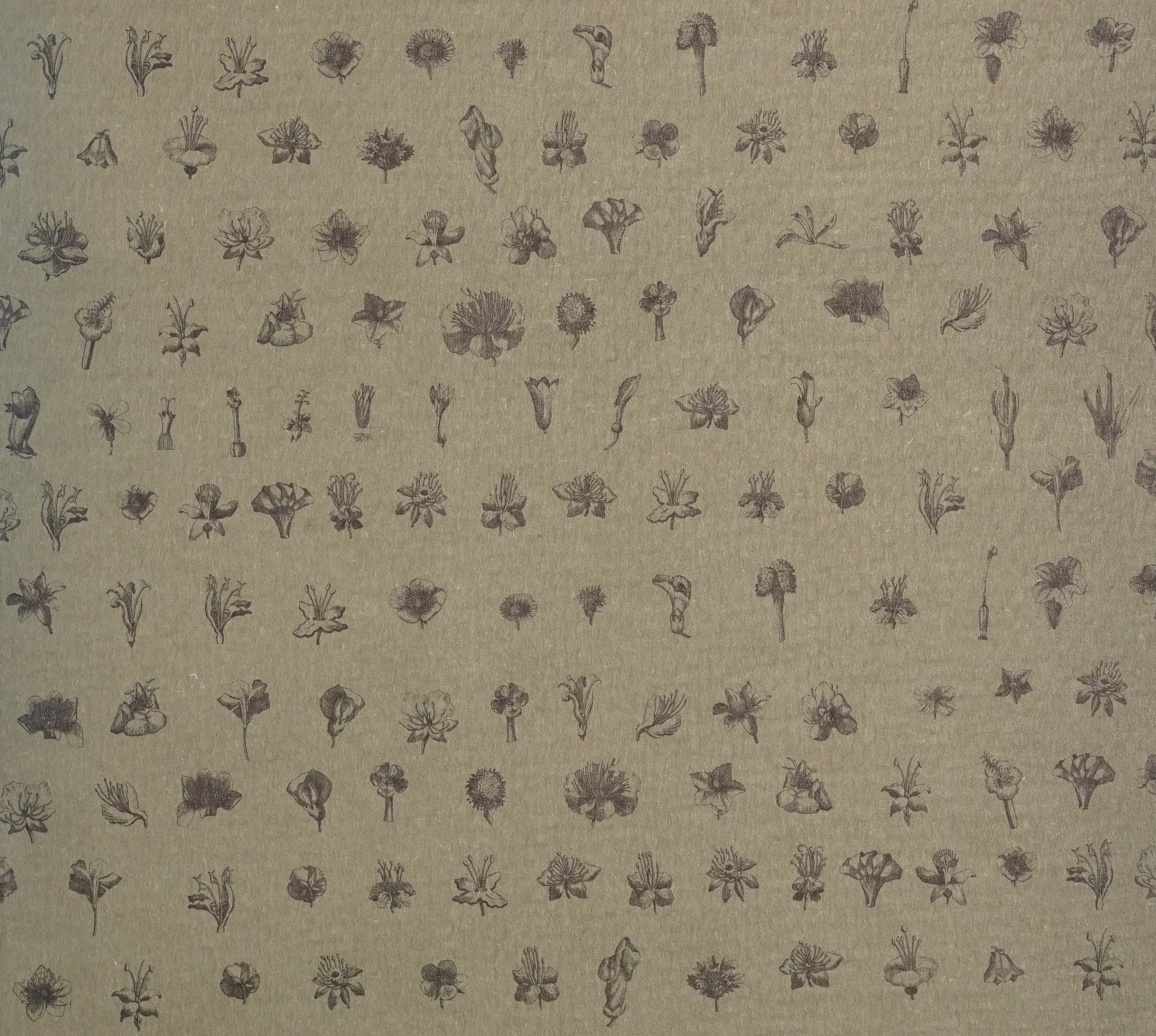

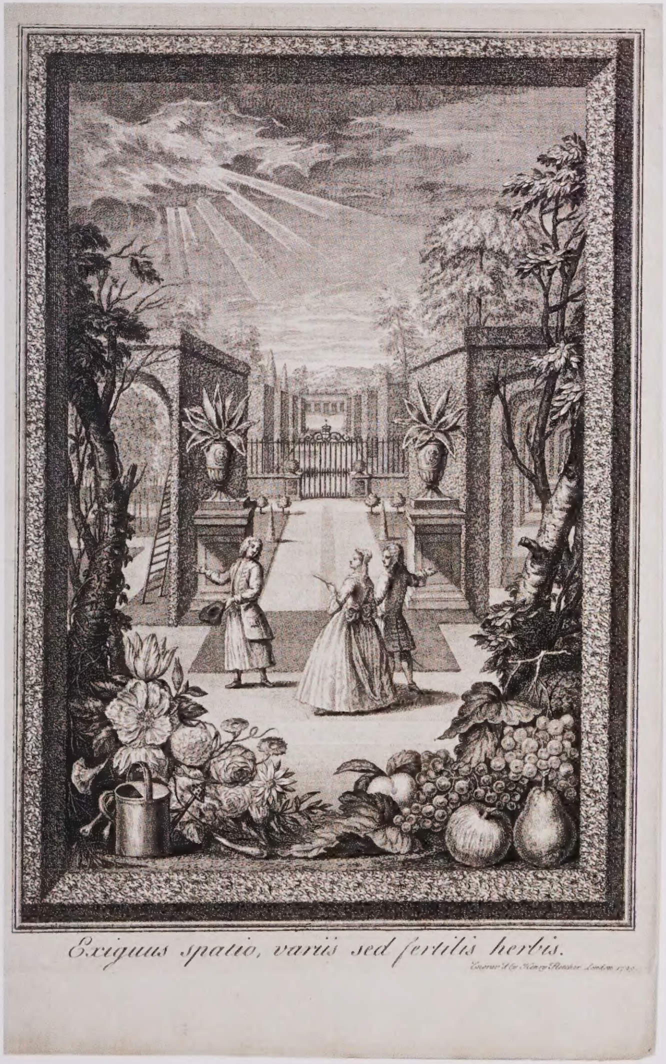
Exiguus spatio, variis sed fertilis herbis.
Engrav'd by Henry Fletcher London

How Does *MY* Garden Grow:
The Education of a Gardener

an exhibition of British and Canadian works on
horticulture from the collections of
The Thomas Fisher Rare Book Library
University of Toronto

Exhibition and catalogue by Anne Dondertman

30 April to 14 September 2012

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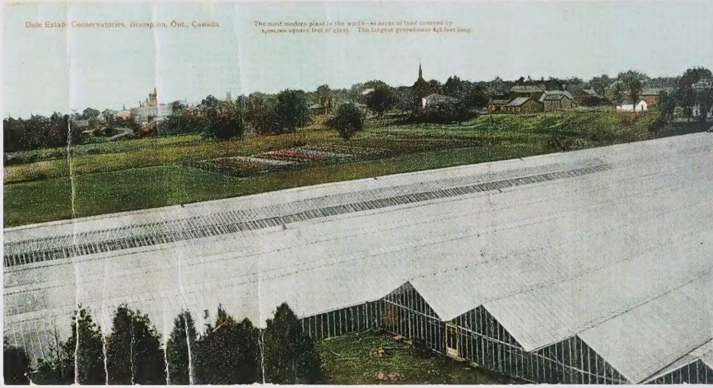
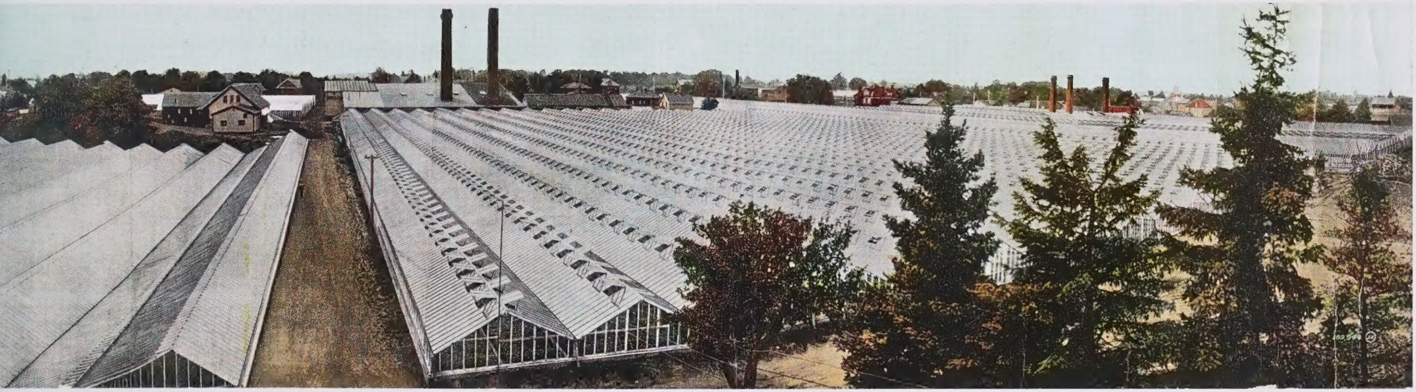
Preface

The title of this exhibition and catalogue makes reference to a twentieth century classic of gardening literature by Russell Page (1906–1985), *The Education of a Gardener*, a work which perfectly combines mastery of the history and craft of gardening with a deep and personal love of plants. Page is renowned for his work as a landscape designer but he always self-identified first as a gardener, tracing his vocation to the study of a pot of campanula which he bought at a country fair at the age of fourteen. From the experience of handling and studying the plant he moved on to his local library for horticultural information, and first honed his skills in his parents' garden at Wragby, near Lincoln. Page is part of a distinguished tradition of English garden writing by hands-on gardeners from John Parkinson (1567–1650) to Philip Miller (1691–1771) to William Robinson (1838–1935) to Isabella Preston (1881–1965), who inspired their contemporaries through their own practice, but also continue to inspire and instruct gardeners today through the written word. Their texts provide us with an enduring reflection of a particular time in a particular garden and give us a glimpse of our horticultural past, grounding us within a tradition and community of gardeners.


Dale Estate Conservatories, Brampton, Ont., Canada
The most modern plant in the world—20 acres of land covered by 1,000,000 square feet of glass. The largest greenhouse 845 feet long.

This exhibition is one approach to exploring the story of western horticulture, as distinct from the broader history of gardening, gardens, or gardeners. The focus of this exhibition and catalogue is on how gardeners, now and throughout history, have learned about plants and how to care for them. The word horticulture is a seventeenth century English adaptation of the Latin *hortus* (garden) and *cultura* (culture), and thus commonly refers to the culture or care of garden plants. Horticulture is thereby differentiated from both agronomy (which deals with field crops and the production of grains and forage), and forestry (which deals with forest trees and products related to them). Implicit in the term horticulture are the recurring tasks undertaken as we care for our plants - we sow a seed or plant a bulb or root a cutting, we thin and transplant, we weed, water, feed, mulch, prune and train. To a gardener, the process as well as the end result bring pleasure.

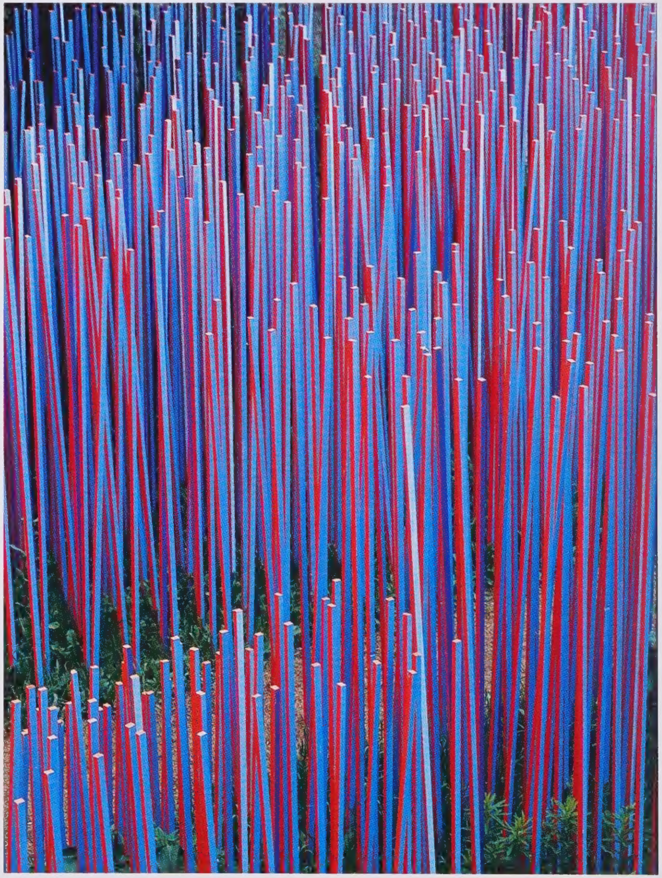
Horticulture generally involves a more personal and direct relationship with plants than does agriculture. In



our gardens we are dealing with plants one on one instead of one on many, as is the case when growing a crop of identical plants, even when those plants are tulips or roses rather than wheat. Growing flowers as a commercial crop on a very large scale was dependent on fast and efficient transportation networks which emerged with the era of railway expansion. A remarkable Canadian example is that of the Dale Estate in Brampton, Ontario. From its beginnings in the 1860s as a small market garden, the Dale family business had grown in the mid-1950s to be one of the largest cut flower greenhouse operations in the world. By 1956 the Dale Estate had forty acres of greenhouses growing twenty million blooms, of which half were roses, which they sold wholesale world-wide. Many women today still remember receiving the trademark long-stemmed red roses, the Dale autograph rose, in which one perfect leaf was perforated to display the Dale family name. By 1980 the firm had ceased to exist, and not one trace of the greenhouses, or the roses, now remains.

The exhibition is restricted to the narrower theme of horticultural history rather than garden history. This approach to the subject results in a more restricted view than most historical surveys on gardens or gardening which necessarily encompass many other aspects of the garden in addition to the culture of plants, for instance hardscaping and architectural components, water features, statuary and sculpture. The focus on learning about plants also sidesteps some of the main themes usually encountered in garden history, which tends to be dominated by studies of grand private and public gardens, or on the architectural aspects of garden and landscape design. All of these topics are well covered in the literature but there have been fewer historical surveys written from the point of view of the practice of horticulture. A notable exception is Anthony Huxley's *An Illustrated History of Gardening*, with its focus on the history and development of methods of gardening especially the evolution of gardening tools. A brief bibliography of some of the most important and useful overviews of garden history is included at the end of this catalogue and full references are available upon request.

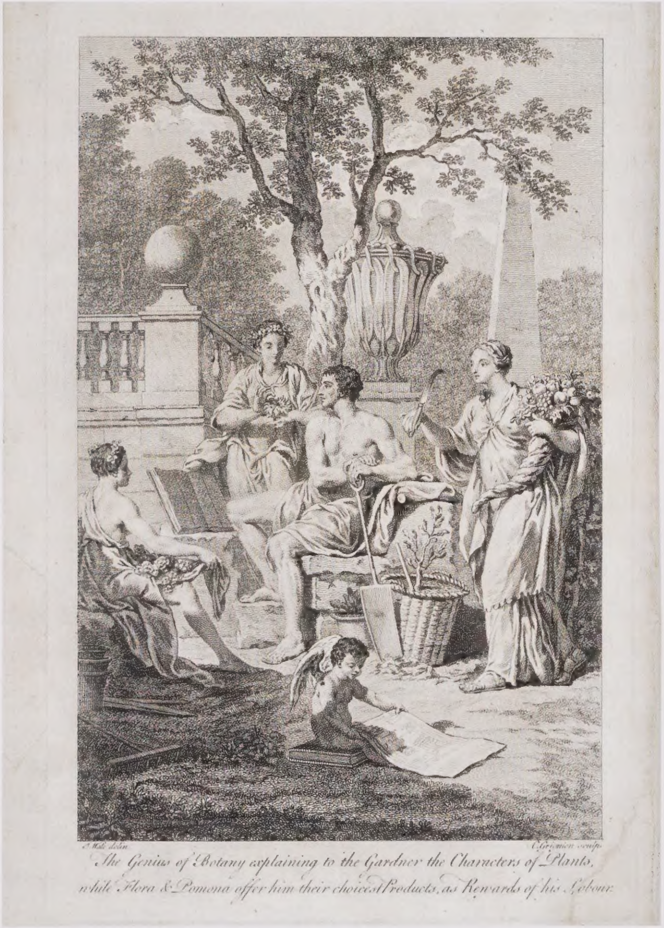
It is difficult even to arrive at a generally accepted definition of the word 'garden'. Not all gardens include plant material. We are familiar with the four-hundred-year-old garden of the Ryōanji temple in Kyoto, now a World Heritage site, which features fifteen stones on a bed of raked gravel surrounded by a low wall, but even in the western tradition the definition of what constitutes a garden is expanding. Tim Richardson's *Avant Gardeners* includes essays by practitioners of conceptualist landscape design, such as Claude Cormier of Montreal, who believes that the 'naturalistic approach to creating landscapes is fundamentally dishonest since it denies the artificiality of the design process'. His well known Blue Stick garden was created for the inaugural Jardins de Métis garden design competition in Quebec in 2000, and was subsequently reinstalled at other venues, including Canada Blooms in Toronto and Herstercombe Gardens in the United Kingdom. Cormier's installation consists of 3,300 wooden sticks of varying heights painted on two sides in tones of blue, and on the other two sides in tones of red. These are arranged along a pathway set against a wooded background, and thus evoke a typical herbaceous border, while also playfully referencing the blue poppy for which the Reford gardens are known. The result is just one example of a space that is recognizably a garden, and yet is largely made up of artificial materials.



The authors of *Transitory Gardens, Uprooted Lives* state that they are trying to 'liberate the word garden from its cultural straightjacket' by stretching the definition of garden to include compositions made by the homeless in New York City in the 1990s. In these gardens plants play only an incidental role, and they are made up primarily of found materials such as wooden skids and milk crates, along with stuffed animals, toys, and other rescued objects from trash cans. Nevertheless, the photographs included in the book depict individuals in settings that are clearly recognizable as gardens, and the gardeners are emotionally invested in their creations.

The earliest gardeners of ancient Mesopotamia, Egypt, or Rome encountered the same basic horticultural challenges that face us today. We need to know how to germinate seeds or propagate plants by other methods, how and when to amend our soil to nurture plants of many different kinds, how best to deal with pests and disease, and a multitude of other techniques and strategies to facilitate our success with garden plants. We also enjoy many of the same satisfactions that our ancestors did - the wonder of seeing tiny seeds sprout and become a huge variety of plants, and the way the bare earth is transformed in spring and teems with life and new growth. Just like gardeners of the past, we derive pride and pleasure from the plants that we have nurtured for both beauty and use. The examples discussed range from the beginnings of recorded horticultural activity some five centuries ago, right up to our present time and place. The focus is on practicalities - on the knowledge needed by everyday gardeners in order to produce beautiful and productive plants, for sustenance, relaxation and enjoyment.

In order to remain within manageable limits, I have excluded the purely botanical aspects of horticulture, including the fascinating and complex subject of the evolving taxonomy of plants, except in so far as it impinges in a very practical way on the daily needs of every gardener. Until Carl von Linné (1770–1778), also known as Linnaeus, standardized plant names through the introduction of binomial nomenclature in his *Species plantarum* in 1753, the common names of plants were not only variable from place to place, but inconsistently applied. One plant could have many names, and the same name could designate completely different plants. The question 'what is this plant?' is as important for a gardener as a botanist because if you do not know precisely which plant you are dealing with, then it is very hard to understand its needs, or to obtain one just like it from a fellow gardener or your local nursery. This exhibition also does not include an extended discussion of botanical art, although illustration has played an important part in the description and identification of plants from the time of the earliest herbals. The works chosen for display, however, do necessarily touch on both the


J. Wale delin
C. Grignion sculp
The Genius of Botany explaining to the Gardner the Characters of Plants,
while Flora & Pomona offer him their choicest Products, as Rewards of his Labour.

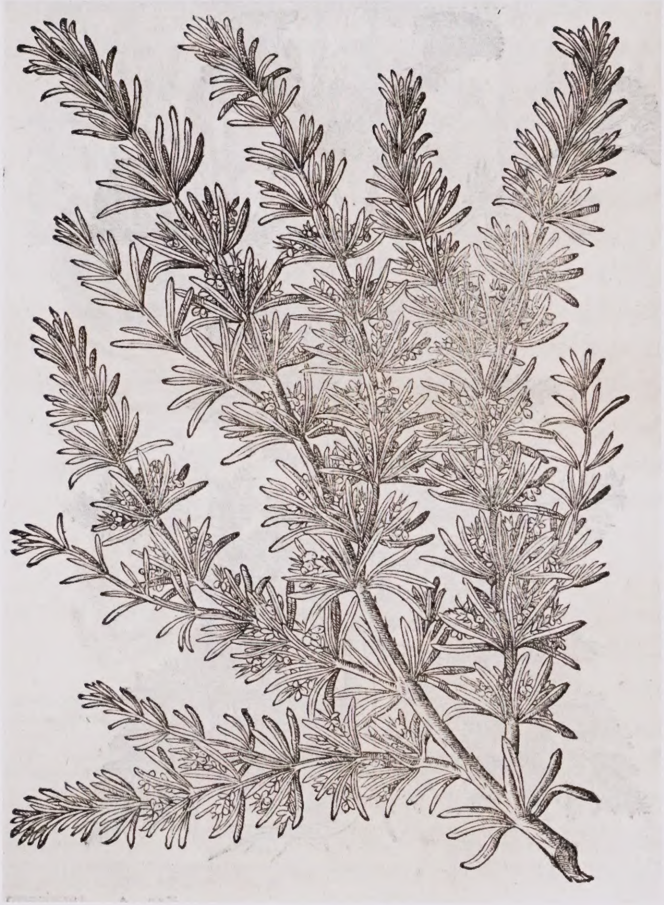
artistic and the scientific aspects of horticulture. Both approaches are needed to make gardens of plants successful and satisfying. We need to know something about the morphology of plants, their habits of growth, their flowering times, their individual needs for light, water, and sustenance in order to grow them successfully. Plants cannot be divorced from their surroundings or studied in isolation. As gardeners we need to know something about the plant in its native or ideal habitat, in order to place it appropriately in a garden context.

The examples on display are drawn chiefly from the British gardening tradition, which is both a reflection of the particular strengths of the Fisher Library holdings, and a means of limiting the scope of the exhibition. This is in no way meant to slight the horticultural traditions and contributions of American gardeners, and eminent horticulturists such as Liberty Hyde Bailey (1858–1954), whose *Hortus* has long been a standard reference for Canadian as well as American gardeners. Canadian examples are included throughout, and contemporary works are side by side with historical texts, highlighting the commonalities in our approach to garden making across both space and time.

The challenges and methods of caring for plants were not so very different in the earliest period of ornamental gardening as they are today. There has always been a need for a detailed knowledge of plants and their requirements, and the horticultural practices and techniques necessary to enable them to thrive in our own gardens. We have always asked the basic questions - what must I do to nurture this plant in my garden? How can I keep it alive until the next season? How can I get more and bigger flowers or fruit or foliage? Why do my neighbour's tomatoes or tulips look so much better than mine? Where do weeds come from and how can I get rid of them? How can I protect my garden from pests and predators? Why do some plants come true from seed and others do not? How can I propagate this plant if it can't be grown from seed?

Even if you can manage to nurture the plants that are known to you in your own locality, there has always been a continuous stream of new plants being introduced. How do you learn to take care of a plant you have never seen before, particularly if it is not native to your area? Novice gardeners need instruction but so do experienced gardeners confronting new challenges by trying to push the limits of their horticultural skill.

John H. Harvey, writing in the very first issue of the journal *Garden History* in 1972 describes just such an instance of a new plant introduction, rosemary, requiring specialized horticultural knowledge for it to be successfully grown outside its native habitat. Although there is evidence that rosemary was known in England from early times for its medicinal properties, it was not grown there before the reign of Edward III (1312–1377). A native of southern Europe, it could not be grown from seed in colder short-season northern climates. At that time almost all the plants grown in England were native species, with perhaps a dozen or so introductions, which could be grown readily from seed or bulbs.



Rosemary was introduced to England as a living plant by the countess of Hainault, who sent it in 1338, along with a copy of a short text on its properties, to her daughter Philippa, queen of Edward III. The text, usually referred to as the 'little book of the virtues of Rosemary' was widely circulated in manuscript from the fourteenth to the sixteenth century. Several versions exist which have appended to the section on its medicinal properties, a treatise on the culture of rosemary, with instructions on how to propagate it from cuttings in order to grow it successfully in a northern climate. A similar treatise on how to root cuttings of rosemary and how to pack rosemary plants for shipment exists in a French manuscript from the end of the fourteenth century.

The English version of the cultural notes was compiled by a Dominican friar, Henry Daniel (ca. 1315–1385), who is known to us as a translator of many Latin medical treatises into English. Harvey compiled a composite text putting together all the extant versions of the cultural notes, the most complete of which is that of Trinity College Cambridge (MS. O.I.13). The treatise runs to more than a thousand words, and is a wonderful amalgam of myth and superstition with practical horticultural advice. For example, it describes rosemary as a holy tree, and states that the plant's height will not exceed that of Christ, and that it will stop growing when it reaches the age of thirty-three, Christ's age at his death. However, the advice given on propagation and transplanting is sound and we still often find similar instructions repeated in cultural instructions today. It cautions that transplanting ought to be done quickly, protecting the roots from drying out, and watering well. The plant should be protected from certain winds and from 'black frost' and be regularly watered for the first three years, until it is established: 'And make a grip [groove] abut him that the water may stand and wose [ooze]'. Cuttings should be taken with a sharp knife when new growth is starting, small twigs should be shaved off the cutting half way up, and the bottom end 'writhed' before planting, to enable it to put out roots. Care should be taken not to take too much from the plant at one time, so as not to damage it.

All of these precepts continue to be relevant today, to the culture of rosemary as well as many other plants. Daniel's translation is one of the few extant medieval English documents which gives us an insight into the cultural practices of the day, and makes us aware of a continuous tradition of plantsmanship coming forward to our own time. Des Kennedy, the well-known Canadian West Coast garden writer, expressed this wonderfully in his garden autobiography, *An Ecology of Enchantment*, when he wrote in the preface that 'We are people who walk hand in hand with green-fingered ancestors and soulmates'.

This exhibition will explore the education of a gardener, focussing on three primary ways of learning about plants, just as the young Russell Page and many others before him did: (1) by reading about the experience of those who have gone before, beginning with antiquity and moving on through five centuries of horticultural knowledge in books, magazines, and now online; (2) by looking carefully at plants - in the wild, in public and private gardens, at flower and garden shows and in nurseries; (3) by hands-on experience in our own gardens, as recorded in plant lists and garden journals. Each of these approaches will be illustrated with both historical and modern examples, both British and Canadian, thereby demonstrating that all these means of learning are as relevant today as they were several centuries ago, and all have as their basis the love of plants and the universal human pleasure we take from them.

ACKNOWLEDGEMENTS

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Paul Zammit and the Toronto Botanical Garden
Sheridan Nurseries

I am most grateful to my many Library and gardening colleagues for their support. This is the first exhibition catalogue which does not have the benefit of a foreword by Fisher Director Richard Landon. He was a staunch advocate for the Library's exhibition program and in his introduction to each catalogue eloquently situated the topic within the larger context of the Fisher research collections. Richard died in October 2011 while this work was in progress but encouraged the concept from the beginning and supported the acquisition of many important works which have immeasurably enriched this exhibition. His guidance and influence will long be missed.

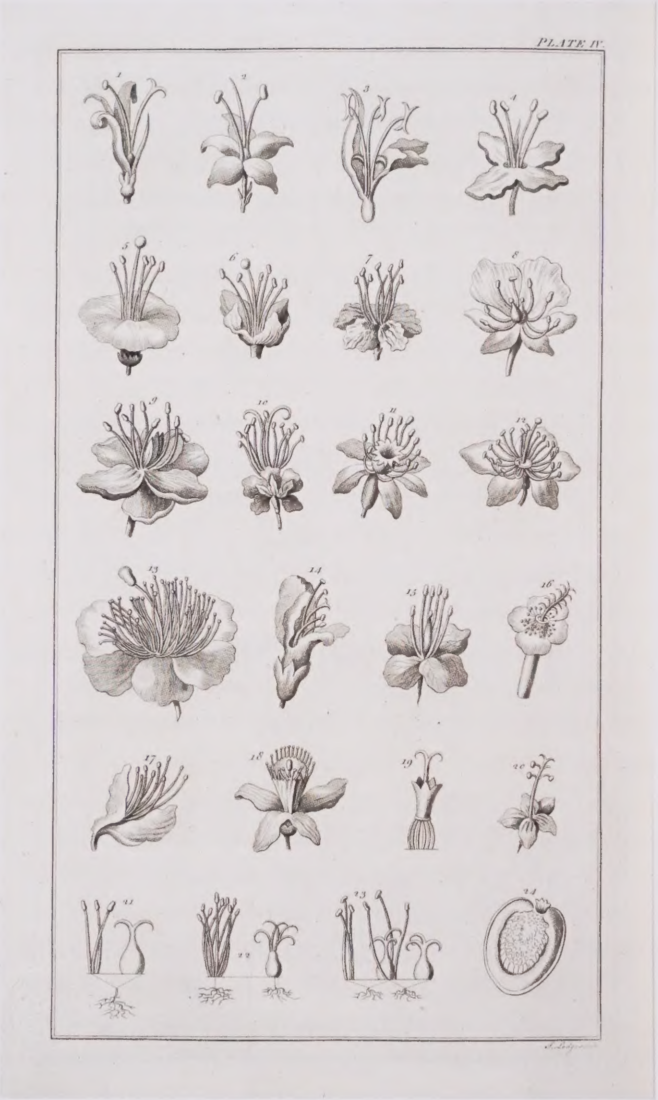
General Introduction: On Plants

In any discussion of the interaction between plants and people it is worth setting the scene by recalling that all life is ultimately dependent upon plants. David Attenborough, in his ground breaking book and television series, *The Private Life of Plants*, begins by emphasizing this very point. He interprets the well known Old Testament phrase 'All flesh is grass' (Isaiah 40:6) in a literal rather than metaphorical sense, reminding us that 'All animals, including the most determined of carnivores, eat plants, if not first-hand, then at second, third or fourth'. Only plants have the ability, through photosynthesis, to convert water and carbon dioxide into oxygen and sugars in the presence of sunlight, and it is this chemical transformation which provides the foundation for all life on earth.

Plants preceded animals in the evolutionary chain by many millennia. The ancestors of our modern garden plants were primitive green algae, which could survive only in water. The great leap in plant evolution took place when plants moved from water onto land. While in the sea, plants had the benefit of a consistent environment and a constant nutrient supply. Conditions on land were much more difficult, and over time plants evolved a great number of new strategies to deal with them. There were two major lines of evolutionary development from simple algae: 1) plants which lack a vascular system to transport water and nutrients, and 2) plants with a vascular system, some producing seeds and others not. In the first category are mosses, hornworts and liverworts. In the second category the plants which do not produce seed include clubmosses, horsetails and ferns. Of course many of these plants are still with us today, and are cultivated in gardens as well as continuing to thrive in the wild. It is the seedbearing plants, however, that have come to dominate the plant kingdom. Seed plants are divided into two major groups: the naked seed group, or gymnosperms, in which the female egg cell is exposed to the open air during pollination; and flowering plants, or angiosperms, in which the seed is enclosed in a protective cover.

In the age of dinosaurs, gymnosperms were one of the main plant forms on earth, made up of cycads, conifers, gnetums and ginkgo. Gymnosperms such as dwarf conifers are common ornamental plants today, and even some gymnosperms of ancient origin can be found in gardens. The ginkgo or maidenhair tree is referred to as a living fossil because it has no close living relatives, being the only remaining member within its family, genus and species (*Ginkgo biloba* in the family *Ginkgoaceae*). Although long cultivated in China, Korea and Japan, it was not introduced to the West until the late seventeenth century. Today it is found in many gardens both public and private, and is a disease-free and extremely hardy tree even in urban environments. A remarkable discovery of an evolutionary line of gymnosperms thought to be long extinct and previously known only in the fossil record occurred in 1994 when the Wollemi pine (*Wollemia nobilis* in the family *Araucariaceae*) was found growing in a wilderness area of a national park just outside Sydney, Australia. With fewer than one hundred trees known to survive in the wild, it is the focus of extensive research to safeguard its survival.

It is the angiosperms, or flowering plants, which have come to dominate the plant kingdom since the time of the dinosaurs. They evolved together with mammals, birds, and flying insects over the past 250 million years, and now account for the vast majority (over 250,000 species) of the plant kingdom. Towards the end of the



Cretaceous Period, some sixty-five million years ago, it is believed that the dominance of angiosperms provided an impetus to primate evolution. Some of the primate species, in addition to animal sources of food, made increasing use of plants in their diet, including fruit, seeds and nuts in addition to foliage. The control of fire was another crucial step in the ability of early humans to make use of plants. They discovered how to clear or alter vegetation with fire, as well as how to make many plants more palatable by cooking. In addition to consumption as food, plants were also used for shelter, clothing, weapons and other tools, and as a source of medicinal ingredients including poisons and hallucinogens.

Indeed, it has been argued that because of the close relationship between humans and other living things which has evolved over many millennia, people have an innate love, or deep connection, with our natural surroundings. American author Richard Louv has recently focussed attention on 'nature deficit disorder' in today's children who are immersed in technology and divorced from the natural world. This attachment to and regard for nature was explored by Harvard University Professor Edward O. Wilson in his influential 1984 book entitled *Biophilia*. More recently, with regard to our relationship with plants in particular, Michael Pollan has argued that our ties to plants are so deep and close, that in fact there are many cases of co-evolution of plants and humans. Cultural critic Robert Pogue Harrison in his wide-ranging book *Gardens : An Essay on the Human Condition* goes even further by coining the term 'chlorophilia', denoting our attachment to green growing plants and trees. Recent studies, such as those conducted at the Landscape and Human Health Laboratory at the University of Illinois, support this hypothesis. In one study at a public housing project in Chicago researcher Frances Kuo tested the responses of women randomly assigned to various apartments. Some had a view of nothing but concrete sprawl, while others looked out on grassy courtyards filled with trees and flowerbeds. When Kuo measured the two groups on a variety of tasks she found that living in an apartment with a view of greenery led to significant improvements in the women's abilities to concentrate, and to deal effectively with their problems. Diana Beresford-Kroeger, a self-defined 'renegade scientist', medical botanist and extraordinary gardener outside of Ottawa, also believes in the restorative effects of nature, particularly of trees, on the brain. For example she discusses the way in which the release of certain aerosols into the atmosphere in a boreal forest has a direct and beneficial effect on the body's arterial system.

It is clear that humans had formed a close relationship with plants long before plants began to be domesticated. The early hunter-gatherers who foraged for food must have possessed a sophisticated knowledge of the plants in their immediate environment. They were familiar with many different species and knew which plants were useful and which were poisonous. They understood the seasons of the year and recognized certain 'seasonal markers', which acted as a trigger for migration, enabling them to revisit sites of useful plants at the time when those plants were ready to harvest. When people lived for any time in temporary settlements in more favourable areas, such as around water sources, they would have observed wild plants regenerating in their immediate surroundings. The soil, enhanced by human and other discarded organic material, would provide a good basis for the germination of seeds. It must often have been the case that the very plants consumed as part of their diet were then observed at close hand growing in their own 'back yard'. This proximity, especially if the settlement persisted during an entire growing season, would have provided the opportunity for close and sustained observation and led to a better understanding of the life cycle of plants. It is not hard to imagine that deliberate nurturing of these plants would be a logical next step, possibly by facilitating the right conditions to encourage growth by clearing away competing vegetation.

The Neolithic Revolution, the beginnings of animal and plant domestication and the shift from a predominantly hunter-gatherer way of life to larger and more permanent settlements, is commonly dated to some 10,000 years ago. This watershed in human history is seen as revolutionary both because it occurred fairly suddenly following the end of the Pleistocene Period (or last Ice Age) around 11,000 years ago, and because it marked enormous changes in the structure and organization of human societies and our relationship to the natural environment. Although the details of this transition and the reasons for it are still not entirely clear, and intensive archeological and biological research continues, the overall picture that has emerged is that the almost universal spread of agriculture was mainly the result of expansion from just a few core regions. In these regions agriculture developed independently, in each case based on the indigenous flora. An important underlying factor is that plants were first taken into domestication in territories where they flourished in a wild state. Thus, for example, the wild grasses that were the precursors of cultivated wheat and barley were restricted to climatically favoured regions of south-western Asia and that is where we see evidence of their early domestication. Cereal crops appear to have been the first to be domesticated. While in the Middle East and western Asia it was wheat and barley, in eastern Asia rice was the basis of agriculture, and in Central and South America maize played an important role.

Domestication of plants is a lengthy process that begins with the gathering and selection of species with exploitable characteristics. The chosen population of wild plants is gradually transformed through continuous selection of individual specimens with desirable attributes. Long before the concept of evolution or the sexual reproduction of plants was understood, people were manipulating plants by selecting them for characteristics useful to us (such as larger size of grain or free threshing forms of wheat) rather than those which favoured survival in the wild. Many of our cultivated plants are man-made cultigens, for which no ancestral plant now survives.

When plants began to be domesticated and people became responsible for their care, from seed germination through many months of nurturing to harvest, the relationship between plants and people became even deeper and more central. At some point along this spectrum as plants played an ever more important role in our lives, humans must have started to appreciate and value plants for their aesthetic as well as practical qualities. Indeed some scholars argue that horticulture preceded agriculture and that the first gardens were created by hunter-gatherers for ritualistic or magical or aesthetic purposes, rather than purely utilitarian reasons such as food production. Certainly the art of many ancient peoples includes depictions of plants, or uses stylized plant forms as decorative motifs. Harrison asserts that 'gardens respond to a set of human needs that are not reducible to our animal needs'. There is ample evidence that the love of plants can sustain us even in the worst situations. Nelson Mandela fought for permission to start a garden while imprisoned on Robben Island. In his book *A Prisoner in the Garden* which contains letters and notes from his twenty-seven years in prison, he writes that 'To plant a seed, watch it grow, to tend it and then harvest it, offered a simple but enduring satisfaction. The sense of being the custodian of this small patch of earth offered a small taste of freedom'.

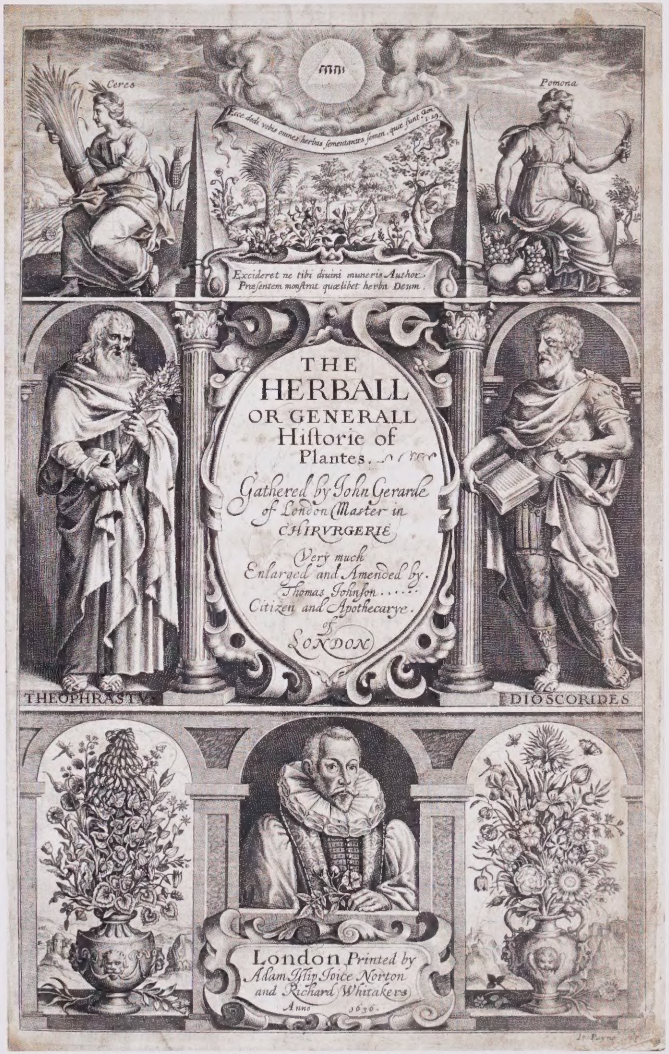
Section One : The Written Word

The almost incessant labour which that art [i.e. gardening] requires leaves so little time for study that one can hardly find any person of sufficient experience capable of writing. On the other side, men of letters have so few opportunities of applying themselves to the general practice that the rules they lay down, however plausible they may seem in the closet, would often ruin the honest gardener who should venture to follow them.

John Martyn (1699–1768) in a review of Miller's *Dictionary* read to the Royal Society in May 1731.

Why, then, presume to write a book about gardening? The simplest answer is that a writer who gardens is sooner or later going to write a book about the subject – I take that as inevitable. One acquires one's opinions and prejudices, picks up a trick or two, learns to question supposedly expert judgments, reads, saves clippings, and is eventually overtaken by the desire to pass it all on.

Eleanor Perényi (1918-). *Green Thoughts : A Writer in the Garden.* New York: Random House, 1981.


Ceres
Pomona
THEOPHRASTVS
DIOSCORIDES

Ecce dedi vobis omnes herbas ſementantes ſemen, quæ ſunt. Gen. 1. 29.

Excideret ne tibi diuini muneris Author
Præſentem monſtrat quælibet herba Deum.

THE
HERBALL
OR GENERALL
Hiſtorie of
Plantes.

Gathered by John Gerarde
of London Master in
CHIRVRGERIE

Very much
Enlarged and Amended by.
Thomas Johnſon .....
Citizen and Apothecarye.
of
LONDON

London *Printed by*
Adam Iſlip Ioice Norton
and Richard Whitakers
Anno 1636.

Setting the Stage : The Earliest Horticultural Writing (CASE ONE)

The earliest recorded texts describing plants emerged out of an ancient tradition of first-hand knowledge. Botanical expertise was vital for existence, because people depended on plants for food, clothing, shelter and medicine. They were familiar with literally hundreds of species and understood the seasonal cycle and the life cycles of plants, how to clear or alter vegetation with fire, sow seed and plant tubers. The process of plant domestication resulted in the basic techniques of agriculture and horticulture becoming well established in the cultures of antiquity whose legacy to us was the creation of the first written record of horticultural knowledge. This first section of the exhibition traces the evolution of our knowledge of plants through the early Greek and Roman texts beginning with Theophrastus, through the European herbal tradition, and finally to the first true work of horticulture in England early in the seventeenth century.

Theophrastus and the nature of plants

Honoured by Linnaeus and others as the father of botany, Theophrastus was born ca. 370 B.C. on the Greek island of Lesbos. He studied with Aristotle under Plato and eventually succeeded Aristotle as second head of the Lyceum. Theophrastus was the younger by about fifteen years, but they were evidently very close as Aristotle entrusted him with the manuscripts of his works, his library and his garden upon his death. They shared an intense scientific curiosity about the natural world. Aristotle himself did not write on plants, and the botanical works of Theophrastus complement Aristotle's writings on zoology. Over two hundred treatises are attributed to Theophrastus, of which many fragments and a few virtually complete works survive. The principal works for which he is known are botanical: *De historia plantarum* (The History of Plants which is also sometimes referred to as Inquiry into Plants, or, Research on Plants), and *De causis plantarum* (The Causes of Plants, or, Plant Explanations). Together they constitute the first scientific and philosophical investigation into the nature of plants. The texts that have come down to us were evidently Theophratus's research notes, used for his lectures on the subject which were continually added to and revised over time, rather than a finished, polished text. The writings are grounded in his own intimate knowledge of the plants in the countryside and in the garden of the Lyceum, which he enlarged after he inherited it from Aristotle. Theophrastus's interest in plants is attested to by his will, in which he left instructions to carry on the garden, and requested that he be buried there. This hands-on knowledge of the local flora was supplemented by the reports of travellers, including those on Alexander the Great's expeditions who brought back descriptions and specimens of plants never before known in the Greek world, such as the cotton plant, the banyan tree, pepper and cinnamon. In addition, Theophrastus had access to an extensive literature on the subject in the Lyceum library and he refers to many older sources such as Democritus. His writings thus sometimes refer to and preserve authors and texts no longer available to us today.

In his two botanical works Theophrastus makes reference to about five hundred species and varieties of plants, a tiny fraction of the 300,000 or so known to us now. In *De historia* he begins by asking some basic questions – what are plants and how can they be defined? What are the constituent parts of plants? In what ways are plants different from animals? How can the differences between plants be categorized and explained? He classifies all plants as tree, shrub, half-shrub and herb - useful divisions still commonly used in books, nursery catalogues and all manner of horticultural writings today. He further divides the plant kingdom into flowering and flowerless plants, the main divisions of botanical taxonomy (now distinguished as angiosperms and gymnosperms). Even the Greek names of the plants recorded in his works continued in use for many centuries. Although some plant names were translated into Latin when published versions of Theophrastus began to appear, many familiar plants (for example peony, hellebore, anemone, iris and crocus) continue to be known by their Greek names.

Reading his work today in English translation one is still struck with the accuracy and intelligence of many of his observations. He was acutely aware of what we would now term ecology, noting in many different places in the text that different plants thrive in different locales: 'locality is more important than cultivation or tendance'. He discusses plants in the context of their surroundings, noting the importance of climate, soil, elevation, light and water. Speaking of vines, he writes 'If they are planted as their nature requires, they turn out well, if otherwise, they are unfruitful. And these remarks apply almost equally to all trees'. His ecological awareness resounds with us today, and we find it echoed, for example, in British gardener Beth Chatto's (1923-) oft-repeated dictum of 'right plant, right place'.

Theophrastus's Greek text was first translated into Latin by Theodore de Gaza (ca. 1400–ca. 1475), a Greek scholar who arrived in Italy about 1440 after the fall of Constantinople, and moved to Rome in 1451 as part of an initiative by Pope Nicholas V to translate classical works in the Vatican library from Greek into Latin. Gaza's translation was based on only a single manuscript, which was evidently very corrupt. It includes both works - *De historia* in nine books and *De causis* in six books. Gaza's translation was finished by 1454 and circulated in manuscript but was not published until 1483.

Since so much has been lost from the classical tradition it is difficult to determine how much of what is recorded in Theophrastus was already commonly known and accepted at the time and how much was newly elucidated and systematized by him. Certainly Theophrastus was writing as part of a civilization which was capable of sophisticated farming and gardening, including extensive cultivation of vines, olives, fruit and ornamentals, demonstrating a deep practical knowledge of cultivation and propagation techniques, including division by roots and cuttings, and grafting. In Book V of *De causis*, Theophrastus discusses the effects of 'art', (meaning human cultivation and care), on the success of plants. He says that 'warmth too is important for early sprouting', and gives some advice (very familiar to all gardeners today) on extending the season by starting seed indoors:

> ... if you plant cucumber seed in winter in baskets, and then water it with warm water and carry the baskets out into the sun and put them by the fire, and then, when the sowing season comes around, plant them in the ground, baskets and all, they come out very early.

Whatever might have been his original contribution to practical understanding of plants, it is certain that the botanical writings of Theophrastus formed the nucleus of western scientific knowledge on the subject until the end of the sixteenth century. It was not until the discoveries and scientific investigations of the late Renaissance that significant new advances in botany were achieved.

1 Theophrastus. *De historia plantarum libri decem, Graecè & Latinè*. Amsterdam: H. Laurent, 1644.
One of the best and most cited editions of Theophrastus is the 1644 folio edition with Latin and Greek printed in parallel, in which the text, edited by Johannes Bodaeus (d. 1636), incorporates the earlier commentary of two other editors – Giulio Cesare Scaliger (1484–1558) and Robert Constantine (d. 1605). This edition of the ten books of *De historia* includes numerous woodcut illustrations of plants in the text, some of which were made for this edition and some copied from other sources. The book is open to the section on the date palm (*Phoenix dactylifera*) where Theophrastus describes the process of artificial fertilization. The date palm is dioecious, meaning that the female and male reproductive organs are separated on different plants, making cross-fertilization obligatory. Knowledge of the technique of pollinating the date palm was known from very ancient times - there is a reference to it in the Code of Hammurabi, dating to about 1700 B.C. Although it was known that the female palm needed to be fertilized with the pollen from a flowering branch of the male tree, sexual reproduction in plants was not fully understood until the seventeenth century.

Roman writers on agriculture

With the exception of the botanical writings of Theophrastus the knowledge of plants that has come down to us is pragmatic rather than theoretical or philosophical, falling into the twin categories of either agriculture or medicine. The four Roman writers whose texts on agriculture have survived are, in chronological order, Marcus Porcius Cato (234–149 B.C.), Marcus Terentius Varro (116-27 B.C.), Lucius Junius Moderatus Columella (approx. 4 B.C. – 65 A.D.), and Rutilius Taurus Aemilianus Palladius (4th century A.D.). The works of these four writers on agriculture are often discussed together and indeed are frequently found published together in a single volume, under the general title *Scriptores rei rusticae.*

The work by Cato, titled in the manuscript versions, 'De agri cultura', is a miscellaneous collection of notes rather than a polished text, giving directions for the care of a farm, and is evidently based on Cato's own first hand experience. It includes instructions on everything from growing asparagus to curing hams. His general advice on transplanting trees and shrubs is much the same as we would find in books today:

> In transplanting olives, elms, figs, fruit trees, vines, pines, and cypresses, dig them up carefully, roots and all, with as much of their own soil as possible ... When you place them in the trench, bed them in top soil, spread dirt over them to the ends of the roots, trample it thoroughly and pack with rammers and bars as firmly as possible ...

Varro had a long and active career in public life, and was renowned for the depth of his knowledge in many diverse subjects and disciplines. He was a prolific writer but only six incomplete books on the Latin language and three books on agriculture have survived. His work on agriculture was begun late in life, and is in the form of an extended dialogue addressed to his wife, Fundania, who had recently purchased a farm. Varro says that his remarks are 'derived from three sources: what I have myself observed by practice on my own land, what I have read, and what I have heard from experts'. He divides the year into eight periods, and specifies the tasks that must be attended to during each period. For example, during the seventh period just preceding the winter solstice, he recommends 'Planting of lilies and crocus', and gives directions on propagating roses: 'A rose which has already formed a root is cut from the root up into twigs a palm breadth long and planted; later on the same twig is transplanted when it has made a living root'.

Columella, following Varro by about two generations, was born in Spain and spent much of his youth with his uncle who was a farmer. He begins by noting that reading about agriculture can be instructive, but that to become a farmer it is necessary to put theoretical knowledge into actual practice. His twelve books on agriculture, *Rei rusticae*, plus one on trees (*De arboribus*) constitute the most comprehensive and systematic of all the Roman agricultural texts. Columella is also the only one to write specifically on gardening. Book 10, titled *De cultu hortorum*, is a departure from the norm in that it is written in verse. Columella explains the reason when he tells the reader that this book is meant to supplement Virgil's *Georgics*. In Book 10, Columella gives much useful advice on tilling, manuring, watering and weeding. He says that at the first signs of spring the gardener

> Should with rich mould or asses' solid dung
> Or other ordure glut the starving earth …
> Now let him with the hoe's well-sharpened edge
> Again attack the earth's surface packed with rain
> And hard with frost; then with the tooth of rake
> Or broken mattock mix the living turf
> With clods of earth and all the crumbling wealth
> Of the ripe field set free …

Despite the extensive and useful practical advice in Columella's work he, like most writers of the day, also repeats some customs that seem merely superstitious to us now, for example, warding off pests by having a barefoot girl experiencing her first menstruation walk three times around a field:

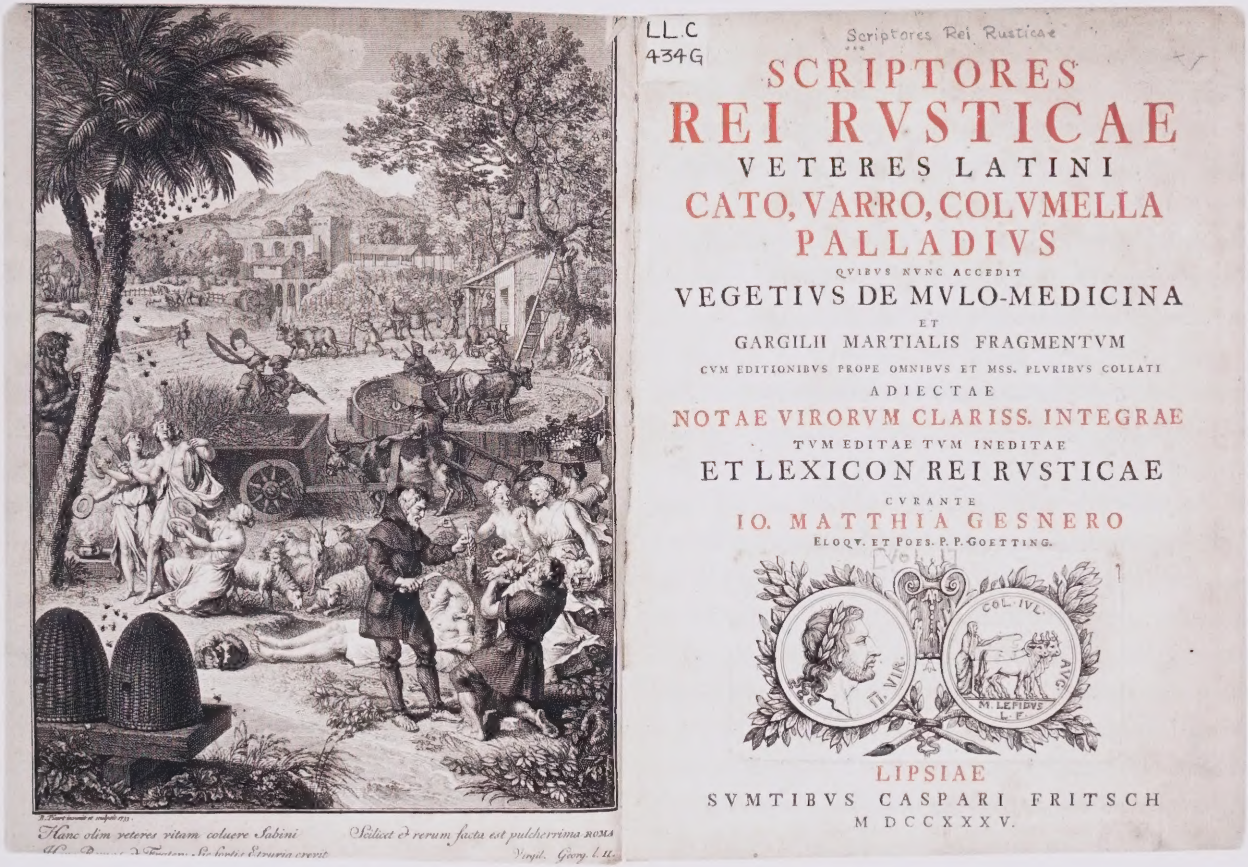
> And when she has encircled it step by step – wondrous to behold! just as a shower of smooth-skinned apples or of bark-thatched acorns rains down when the tree is shaken, so writhing caterpillars are tumbled to earth.

Palladius is the most frequently found of the Roman writers, and was evidently very popular. Writing more than three centuries after Columella he based much of his work on the earlier text. His manual is entirely arranged in calendar form, giving agricultural hints for each month of the year, beginning with January.

2 *Scriptores rei rusticae, ed. by J.M. Gesner*. Leipzig: Fritsch, 1735.

The Roman agricultural texts were first printed very soon after the establishment of the printing press - the *editio princeps* was issued by Nicolaus Jenson in Venice in 1472, and there were four other incunable editions. This edition of the four Roman texts by Johann Matthias Gesner (1691–1761) was published in 1735 and is considered to be one of the best, including copious commentaries and notes. Gesner was a German scholar who published works on classical languages and literature. The engraved illustrated title page depicts a variety of idealised agricultural tasks including ploughing, sowing and harvesting (all taking place simultaneously), and grafting. The Latin quotation at the bottom is from Book II of Virgil's *Georgics*. Virgil is thought to have taken many of his agricultural precepts from Varro.

It is perhaps telling that for both Varro and Columella, who are known to have written a great deal, the only substantial texts of theirs to come down to us are their agricultural and horticultural works. Prior to the advent of printing in the mid-fifteenth century the texts of the classical Greek and Roman authors were available in a variety of manuscript versions. These would have necessarily been limited in number, surviving in a few local



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Scriptores Rei Rusticae

SCRIPTORES
REI RVSTICAE
VETERES LATINI
CATO, VARRO, COLVMELLA
PALLADIVS
QVIBVS NVNC ACCEDIT
VEGETIVS DE MVLO-MEDICINA
ET
GARGILII MARTIALIS FRAGMENTVM
CVM EDITIONIBVS PROPE OMNIBVS ET MSS. PLVRIBVS COLLATI
ADIECTAE
NOTAE VIRORVM CLARISS. INTEGRAE
TVM EDITAE TVM INEDITAE
ET LEXICON REI RVSTICAE
CVRANTE
IO. MATTHIA GESNERO
ELOQV. ET POES. P. P. GOETTING.

[Vol. I]

LIPSIAE
SVMTIBVS CASPARI FRITSCH
M DCCXXXV.

B. Picart invenit et sculpsit 1733.

Hanc olim veteres vitam coluere Sabini *Scilicet et rerum facta est pulcherrima ROMA*
Sic fortis Etruria crevit
Virgil. Georg. l. II.

centres of learning such as monasteries. Translations into the vernacular existed as well as the original Latin texts. For example, there is a surviving manuscript of an English translation of Palladius's text dated to about 1420 with the title 'On Husbondrie'. Another early English manuscript on gardening, 'The Feate of Gardening, by Mayster Jon Gardener', dating to approximately the same time period was described by Alicia

Amherst (d. 1941) in 1893. The practical advice and knowledge in these manuscripts must have continued to be a useful resource during the many centuries of relatively slow progress in botany, medicine and agriculture that followed the collapse of the Roman Empire. The knowledge contained in these early works was sufficiently important that they were among the first texts to be printed in the two or three decades following the introduction of printing in the West.

The first printed work on agriculture is *Ruralia commoda* by Pietro de Crescenzi (1230?–1320?) issued at Augsburg in 1471 just one year before the *editio princeps* of the four classical era agricultural texts. Crescenzi's is a much more up-to-date approach to agriculture, published just a century and a half after his death, and based on actual hands-on experience on his own large country estate near Bologna. It incorporated advice from classical authorities such as Palladius and Columella, supplemented with detailed information on general plant and animal husbandry, with some attention paid to ornamental gardens as well as practical agriculture. Originally written in Latin, it was quickly translated into Italian, French and German.

3 Pietro de Crescenzi. *Ruralia commoda*. Speier: Peter Drach, ca. 1490–1495.
This edition of the 1490s published in Germany was the first to be illustrated, and contains woodcuts depicting plants, animal husbandry, and agricultural and horticultural techniques such as planting trees, grafting and propagating by taking cuttings. The Fisher copy survives in its original binding of tawed pigskin over oak boards, with brass and pigskin clasps.

Dioscorides and the medicinal uses of plants

The early agricultural texts are paralleled by those which focus on the use of plants in medicine. Ancient medicine was largely based on an understanding of the remedial properties of plants. The *rhizomoi*, whose occupation was to gather, prepare and sell roots and herbs for pharmacological use, practised an ancient and respected profession. The correct identification of plants in the wild was clearly of prime importance in the manufacture of medicines, and errors could prove to be harmful if not fatal. Dioscorides Pedanius of Anazarbos (first century A.D.) was a Greek physician who wrote an authoritative work on the therapeutic uses of plants. His work *De materia medica* contained descriptions of some six hundred plants, about one hundred more than were described by Theophrastus two centuries earlier. The arrangement of the text is by plant groups based on the properties of the plants and the way they were used. Dioscorides enumerated the medical properties of plants but also included information on their morphology and distribution, and emphasized the importance of observing plants in their native habitats at all stages of their growth. Even in his day there were serious problems resulting from the confusion of one plant with another, and Dioscorides attempted to give sufficient information for accurate identification. The precise identification of the plants in the Dioscoridean canon and their proper naming has continued to be a source of interest and controversy for botanists ever since.

The Greek text circulated in manuscript form and was much valued in the Arabic world as well as in the west. Many manuscripts of Dioscorides have survived, but the most magnificent of them is the Codex Vindobonensis dating from about 512 with some four hundred coloured full-page paintings of plants. In 1562 it came to the attention of the diplomat and collector Ogier Ghiselin de Busbecq (1522–1592) who saw it in Constantinople and was instrumental in securing it for the Emperor Ferdinand I. The first printed edition in Latin was in 1478, and in the original Greek in 1499. There were subsequent Latin editions, as well as translations into Italian, French, Spanish and other European languages. Indeed it has been said that the greater part of the scientific literature published in the sixteenth and seventeenth centuries was in the form of commentaries, translations and revisions of Dioscorides. In time the commentaries and additions often became so elaborate that they overwhelmed the original text.

One of the most important of the commentators was Pietro Andrea Mattioli (1501–1577), who graduated from the renowned medical school at Padua, practised medicine in Italy and later became physician to the Emperor Maximilian II in Prague. Mattioli was a friend of Ogier Ghiselin de Busbecq who provided him with two manuscripts of Dioscorides's text, and also supplied him with plant drawings and possibly also with specimens.

Mattioli published a new Italian translation of *De materia medica* in Venice in 1544, and an authoritative edition in Latin ten years later which included hundreds of small woodcuts in the text, the joint work of the Italian artist Giorgio Liberale (1527–1579?) and the German engraver Wolfgang Meyerpeck (1505–1578). Some of the later editions of Mattioli, beginning with the 1562 Czech translation published in Prague, contained a new set of larger and more detailed full-page woodcut illustrations by the same artists, many of which were drawn using actual botanical material. The accurate depiction of plants to aid in identification was becoming critically important as more and more unfamiliar plants flooded into Europe from voyages of exploration to Africa, the Near and Far East and the Americas. Mattioli's version of *De materia medica* included many new plants not known to Dioscorides, such as the African marigold, horse chestnut, auricula, and the lilac, which was first depicted in the 1565 edition. Although the plants were originally included for their medical attributes many of them have continued to be grown as beautiful garden plants.

4 Dioscorides Pedanius. *De materia medica*. Frankfurt: Chr. Egenolph, 1543.

This is one of the many editions of the Latin translation by

Jean Ruel (1479–1537) first published in 1516 and includes helpful indexes of plant names in Greek, Latin, French and German. In chapter CXII, headed '*Rosa*', Dioscorides outlines the many medicinal properties of the petals, leaves and hips of the rose, which he begins by describing as 'cool and astringent'. Rose extracts of various types can be used to treat headaches, eye and skin infection and wounds, and pain of the perineum, intestine, rectum and vulva. Dioscorides's text is printed in roman type immediately beneath the illustration, with Ruel's commentary below in italic.

5 Dioscorides Pedanius. *Commentarii in sex libros Pedaci Dioscoridis Anazerbei de medica materia,* ed. by Pietro Andrea Mattioli. Venice: Valgrisi, 1565.
Valgrisi was a distinguished printer of illustrated books, issuing many editions of Mattioli's version of Dioscorides beginning in 1558. The 1565 edition added three hundred new illustrations of plants by the team of Giorgio Liberale and Wolfgang Meyerpeck, many of which were full-page size. The woodblocks for these continued in use in subsequent editions until 1604. There is a notable improvement in accuracy between the depictions of the rose in the earlier and later editions on display.

Dioscorides was not an original thinker as was Theophrastus, but his work is valued as a compendium of known medicinal and culinary plants of the Roman empire. *De materia medica* remained influential even into the eighteenth century, and it would be difficult to overemphasize the importance of this core text in either medicine or botany.

Gerard and the herbal tradition in England

The works of Mattioli's contemporaries and successors later in the sixteenth century - Leonhard Fuchs (1501–1566), Konrad von Gesner (1516–1565), Rembert Dodoens (1517–1585), Charles de l'Ecluse (1526–1609), Joachim Camerarius the Younger (1534–1598) and Matthias de l'Obel (1538–1616) - extended the earlier herbal tradition, including descriptions of the plants known to the classical writers but supplementing these with additional entries for local flora. It was increasingly obvious that an entirely new approach to plant classification and description was needed in order to accommodate the many plants being introduced from parts of the world which were being newly explored by Europeans. Also, plants were being studied scientifically, for their own intrinsic interest, and not only from the point of view of their usefulness in medicine. However, most of these early botanists continued to come from a medical background, practising as physicians or apothecaries, and this was the case in England as well as on the Continent. The first illustrated book on plants published in England was *The Grete Herball.* This work, in English rather than the usual Latin, was not original, being in the main a translation from French sources, but it proved popular enough to require further editions in 1529, 1539 and 1561. This was followed in 1551 by the first part of *A New Herball* by

William Turner (d. 1568), a scholarly work which was based on accurate observation of plants.

John Gerard (1545–1612) trained as a surgeon and his professional expertise is emphasized by the testimonials included in the introduction to the first edition of his *Herball*, published in London in 1597. This includes one by de l'Obel who met Gerard when de l'Obel lived in London from the 1590s and supervised the garden of the great plant collector Lord Edward Zouche (c.1556–1625) in Hackney. Although Gerard's love of plants may have begun with an interest in their medical properties, he became a skilled gardener, creating an outstanding garden of his own near his London home in Holborn. In 1596 he issued a printed catalogue of the plants in his garden listing more than a thousand species, including many rare and unusual foreign plants such as the potato. For twenty years he also acted as gardener to William Cecil, Lord Burghley (1521–1598) who had one of the most renowned gardens in England at Theobalds in Hertfordshire. Gerard dedicated the first edition of his herbal to Burghley, and in it he writes eloquently about his love of plants, for their beauty rather than their utility:

> Among the manifold creatures of God … none have provoked mens studies more, or satisfied their desires so much, as plants have done, and that upon just and worthie causes: For if delight may provoke mens labour, what greater delight is there than to behold the earth apparelled with plants, as with a robe of imbroidered worke, set with orient pearls, and garnished with great diversitie of rare and costly jewels?

There has been a great deal of controversy about the sources for Gerard's text, and he has been accused of plagiarizing from an unpublished English translation of the work of Dodoens by the London physician Robert Priest. Certainly Gerard himself acknowledged in his preface that he had consulted 'divers herbals, set foorth in other languages' and it is clear that Gerard's text draws on previous work by William Turner, Pierre Pena, de l'Obel and others in addition to Dodoens. However, Gerard added notes and observations of his own, as well as providing descriptions of native flowering plants, including almost two hundred not previously described. His work has been particularly important in the study of British flora because he gave precise localities for the English plants he described.

6 John Gerard. *The Herball or Generall Historie of Plantes*. London: J. Norton, 1597.
Gerard, being a gardener himself, includes some plants which have no medicinal uses but are valued for their flowers such as tulips. In the section of the description where the plant's uses are usually enumerated Gerard simply writes: 'There hath not been anything set downe of the ancient or later writers as touching the nature or virtues of the Tulipaes, but [they] are esteemed especially for the beautie of their flowers'. The cultivated tulip had been introduced to Europe in 1554 from

Constantinople, and had reached England by about 1578. Gerard, writing only two decades later, begins by describing it as a 'strang and forraine flower' valued 'because of that excellent diversitie of most brave flowers which it beareth'. He divides tulips into early, mid-and late-flowering types, much as we still do today, and lists fourteen different kinds, although he cautions that they seem to be 'almost infinite in number' and notes that sowing the seed results in 'each new yeere bringeth foorth new plants of sundrie colours not before seene'. The genetic variability of the tulip and the search for new forms was the driving force behind 'tulipomania' in the Netherlands which culminated in the market crash of 1637.

Thomas Johnson (d. 1644) was a London apothecary with a great interest in botany. He took part in several botanizing excursions in England, beginning in 1629 when he travelled in Kent, the accounts of which were published at the time. Johnson updates, corrects and augments Gerard's text, increasing it from the original 1392 to 1630 pages, and he helpfully provides a 'catalogue of additions' as well as marking his alterations and additions in the text with an obelisk or dagger. His popular revision, often referred to as 'Johnson's Gerard', was first issued in 1633 and then again in 1636 with the same pagination. Previous to Johnson's work on the *Herball*, de l'Obel had been engaged in revisions and corrections during Gerard's lifetime but the project was never completed. Gerard himself had freely admitted that his text contained many errors, and would need revision – 'yet may my blunt attempt serve as a whetstone to set an edge upon some sharper wits, by whome I wish this my course discourse might be both fined and refined'.

7 John Gerard. *The Herball or Generall Historie of Plantes, enlarged and amended by Thomas Johnson.* London: A. Islip, J. Norton and R. Whitakers, 1636.
Johnson and his fellow apothecaries documented many native plants in their excursions, and some of the illustrations and descriptions of these from his earlier volumes of travels are repeated in the *Herball*. For example, he describes a plant now known as bog chickweed or bog starwort (*Stellaria alsine*) as being found 'in waterie places in July and August, as betweene Clapham heath and Touting, and between Kentish towne and Hampstead'. This plant is numbered twelve in the list and has been given the name creeping water chickweed or *Alsine palustris serpillifolia*. In Gerard's original chapter on chickweed he had described only ten types, and Johnson has been able to add descriptions for three more (numbers 11–13) which are marked off in the text with a double dagger symbol at the beginning and end of the additional text. The illustration, also marked with a double dagger indicating it is new, is small and would be quite difficult to use as the basis for identification without the detailed description.

Parkinson: 'plants for delight and beauty'

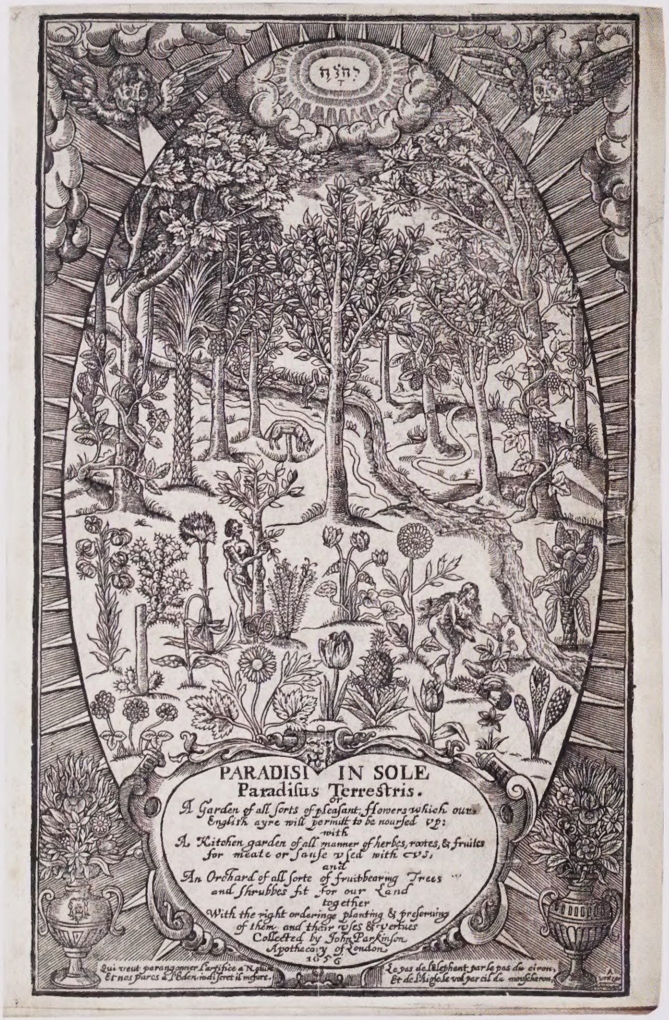
John Parkinson (1567–1650) is a link between the older texts treating plants from the point of view of their utility, and the flood of horticultural literature produced in the later seventeenth and eighteenth centuries. Parkinson apprenticed as an apothecary and was an important member of the Society of Apothecaries from its foundation in 1617, being awarded the title of '*botanicus regius primarius*' by Charles I. Later in life he produced his own herbal, *Theatrum botanicum*, but his real passion was his garden at Long Acre in London. In 1629 he published *Paradisi in sole paradisus terrestris*, a title which perfectly captures his delight in his garden. Translated as 'the terrestrial paradise of the park in the sun', it is a pun on his own name.

In his preface Parkinson explains that this work is intended to fill a gap because previous works on plants (for example that of Gerard) had not adequately dealt with flowers, and even when included 'none of them have particularly severed those that are beautifull flower plants, fit to store a garden of delight and pleasure, from the wilde and unfit '. The *Paradisi* includes descriptions of about one thousand plants cultivated in Britain, whereas his herbal describes some 3800. In the *Paradisi* he was not merely enumerating plants comprehensively, but choosing those species and varieties which were 'the chiefest for choyce, and fairest for shew, from among all the severall tribes and kindreds of natures beauty'. In his plant listings he includes full descriptions including former names, to make it possible to identify precisely the plant in question . The book includes full-page illustrations, each showing a number of species together. There is also an iconic and exuberant woodcut title page, showing Adam and Eve tending recognizable flowers, including tulips, in the Garden of Eden. Shown just to the left of centre is the mythical plant/animal the 'Scythian lamb', a living lamb growing on the end of a plant stalk, like a flower, which was perhaps included by Parkinson or his publisher as one more indication of the wonders of the natural world.

The publication of this landmark work, described by Blanche Henrey in her meticulously researched bibliography *British Botanical and Horticultural Literature Before 1800* as 'the earliest important treatise on horticulture printed in England' is a clear indication that plants were now beginning to be valued for their decorative qualities. The longest section of the book, devoted to 'the garden of pleasant and delightfull flowers', is followed by sections on 'herbes and rootes' and on the orchard. Parkinson describes plants growing in his own garden in Long Acre but also those seen in the gardens of fellow botanists and gardeners. There are many references to plants he obtained or saw in the famous garden of his friend and fellow plant lover and collector John Tradescant (d. 1637) 'that painfull industrious searcher, and lover of all natures varieties', who grew an extraordinary variety of plants in his Lambeth garden.

8 John Parkinson. *Paradisi in sole paradisus terrestris.* London: Printed by R.N. and are to be sold by R. Thrale, 1656. On display is the second edition of the work, published after Parkinson's death, and advertised as 'much corrected and

enlarged', but in fact differing very little from the first, with almost identical pagination, and retaining the illustrated title page. The entry shown is for the recently introduced spider-wort, *Phalangium ephemerum virginianum* or John Tradescant's spider-wort (*Tradescantia virginiana*), named for Parkinson's close friend and fellow gardener who 'first received it of a friend, that brought it out of Virginia'.



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PARADISI IN SOLE
Paradiſus Terreſtris.
or
A Garden of all ſorts of pleaſant flowers which our
English ayre will permitt to be nourſed vp:
with
A Kitchen garden of all manner of herbes, rootes, & fruites
for meate or ſauſe vſed with vs,
and
An Orchard of all ſorte of fruitbearing Trees
and ſhrubbes fit for our Land
together
With the right orderinge planting & preſeruing
of them and their vſes & vertues
Collected by John Parkinſon
Apothecary of London
1656

Qui veut parangonner l'artifice a Nature,
Et nos parcs à l'Eden indiſcret il meſure.

Le pas de l'elephant par le pas du ciron,
Et de l'Aigle le vol par cil du mouſcheron,

Beyond Parkinson : Later Works on Horticulture (CASES TWO TO FOUR)

Comprehensive general works

Over the course of the century after Parkinson's landmark work of 1629 a steady stream of books on gardening and horticulture began to be issued in Britain. Herbals continued to be published in large quantities, as well as specialized works such as catalogues and plant lists of individual gardens, some of which are discussed in section two. The last half of the seventeenth century saw a wave of books on fruit growing, and also on forest trees, reflecting the large-scale planting being carried out on country estates. The French influence was evident with the English translation by John Evelyn (1620–1706) of Nicolas de Bonnefons's *The French Gardiner* in 1666 and Jean de La Quintinie's *The Compleat Gard'ner* in 1693. As more and more plants were introduced, and gardening expanded to an ever wider group, along with the prosperity resulting from the growth of the British Empire, there was a clear need for a comprehensive work similar to Parkinson's covering all aspects of horticulture. However, it was not until 1731, with the publication of *The Gardener's Dictionary* by Philip Miller (1691–1771) that a breakthrough work appeared. Its descendents followed over the next two centuries, culminating in the Royal Horticultural Society's *Dictionary of Gardening* in 1951.

Philip Miller's horticultural talent was evident from an early age. He first worked in his father's market garden in Deptford but soon established his own ornamental plant nursery in Southwark. The Scottish doctor and botanist Patrick Blair (d. 1728) came to know him and astutely recommended him to Sir Hans Sloane (1660–1753) for the post of gardener at the Society of Apothecaries Physic Garden at Chelsea as one 'to go forward with a curiosity and genious superior to most of his profession'. Miller was appointed in 1722, stayed at Chelsea for almost fifty years until his resignation at the end of 1770, and died the following year. During his time the Chelsea garden rose to pre-eminence in Europe as a centre of horticultural knowledge and of plant dissemination. In the next century, John Rogers (1752–1842), who had worked in the Royal Gardens at Richmond and Kew, was just one of many to pay tribute to Miller's *Dictionary* in his own work, *The Vegetable Cultivator* of 1839, writing that 'It may be almost said to have laid the foundation of the horticultural taste and knowledge in Europe'. John Claudius Loudon (1783–1843) says of him in *Arboretum et fruticetum Britannicum* that 'Miller during his long career had no considerable competitor'. The first edition of Miller's *Dictionary* was one of two books which were the earliest recorded purchases for the library of the Horticultural Society of London in December 1806. Miller's biographer, Hazel Le Rougetel, was not alone in considering him 'the most distinguished and influential British gardener of the eighteenth century'.

In addition to being a great gardener and plantsman Miller was a prolific writer whose practical expertise was grounded in theoretical knowledge. He had received a good education in both languages and sciences, had the opportunity to travel in England, Flanders and Holland visiting gardens and talking with gardeners, and read widely on gardening. The bibliography in the 1768 edition of his *Dictionary* lists 120 works, ranging from the 1558 edition of Dioscorides by Mattioli to the 1765 edition of Linnaeus. Miller's first work, *The Gardeners and Florists Dictionary or A Complete System of Horticulture*, published in 1724, was a rehearsal for the work for which he is best known *The Gardener's Dictionary*, but he was also the primary author for the *Catalogus plantarum* of 1730, the *Gardeners Kalendar* of 1732 and the beautiful illustrated volume *Figures of Plants* issued from 1755–1760 (all three titles are on display in other sections of this exhibition). It was the *Dictionary*, however, that made his name, and everyone who gardened owned a copy and used it as their horticultural Bible.

The *Dictionary* was first published as a folio volume and cost more than most head gardeners at the time would have earned in a month. A second edition had appeared by 1733. The third edition of 1737 contained a second alphabetical list of newly introduced plants in an addendum, provided information on the cultivation of the pineapple and the constructions of hothouses, and included three botanical plates by the artist Georg Dionysius Ehret (1708–1770) keyed to the glossary of technical words. New plants continued to be added in subsequent editions and the descriptions were based on Miller's own experience growing them at Chelsea. In the sixth edition of 1752 the various alterations and additions were incorporated into the main text rather than being added as a separate alphabetical section at the end. The eighth and final edition during Miller's lifetime, published in 1768, was the first to employ Linnaeus's binomial nomenclature. In order to forestall further piracy (a pirated version had appeared in Dublin as early as 1732, and others followed) and because there was a clear need for a cheaper edition, an octavo abridgement of the *Dictionary* priced at eighteen shillings was first published in 1735. It contained the whole of the practical portion of the folio edition, but some of the explanations and philosophical articles were omitted. Five further editions of the abridgement were published during Miller's lifetime. The *Dictionary* was translated into Dutch in 1745, German in 1750 and French in 1776.

The main part of the *Dictionary* consists of an alphabetical list of entries, including in a single sequence entries on plants (e.g. rosa), botanical entries (e.g. root) and horticultural entries (e.g. ripening of fruit). Plants are entered under their Latin names, giving synonyms and common names, a description with distinguishing characteristics and information on habitat and instructions for cultivation. Miller's love of plants manifests itself along with practical technical information. For example he appears very much in tune with current attitudes when he recommends growing roses informally in the open, as flowering shrubs, rather than segregated in the rose garden. Roses must have been a special love and he lists fifty-four varieties in the 1754 abridged edition, noting that they are '... the most beautiful and fragrant flowers of any kind of shrub yet known. This together with their long continuance in flower, has justly render'd them the most valuable of all the sorts of flowering shrubs'.

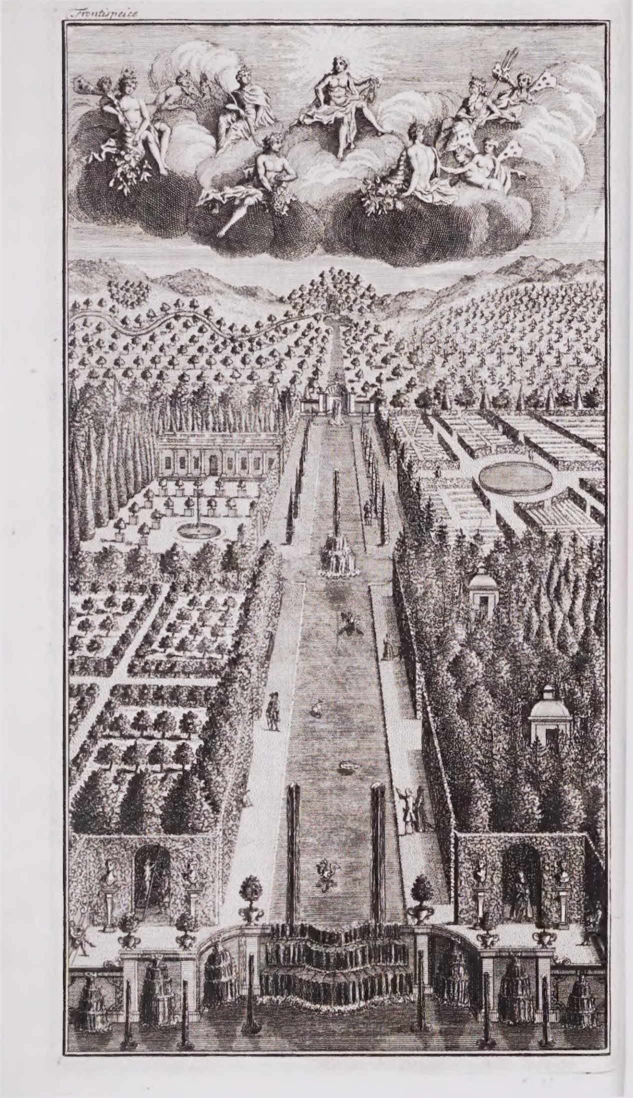
While many of the plants are 'exotics' Miller was always keenly interested in the indigenous plants of Britain and these were included if they were useful or decorative. In addition to the dictionary portion, there were sections on the kitchen, fruit and flower gardens and the 'wilderness', where choice shrubs and trees were grown. There was also extensive information on the building and maintenance of greenhouses and hotbeds, and on grapes and vineyards. There were separate lists of plants by type, which is a helpful feature also found in many later comprehensive gardening books: hardy deciduous trees and shrubs and hardy evergreen trees and shrubs (with separate lists of variegated types), large trees, climbers, perennials, shade plants, tender and greenhouse plants and medicinal plants. Additional content continued to be added with subsequent editions. Miller notes in his preface to the final edition of 1768 that the number of plants cultivated in Britain had doubled since the first edition of 1731. Since Miller grew and described so many new species, which had to be given names, the *Dictionary* was the main source of information about them and helped to standardize the nomenclature. However it was not until the 1768 edition that Miller fully adopted the Linnaean system of binomial nomenclature.

9 Philip Miller. *The Gardeners Dictionary: in Two Volumes, Containing the Methods of Cultivating and Improving the Kitchen, Fruit and Flower Garden*. London: J. Rivington, 1740.

10 Philip Miller. *The Gardeners Dictionary. Abridged from the Last Folio Edition*. London: John and James Rivington, 1754.

On display is the frontispiece and title page to the first volume, and plate II showing leaf forms from the Addenda in the second volume of the folio edition. The explanatory text is keyed to the numbered illustrations. For example, the entry in the *Dictionary* under *folium pennatum* describes a pennated leaf as 'a compound leaf divided into several parts, each of which is called a lobe, placed along the middle rib, either alternately, (as in Plate II fig. 22) or by pairs (as in Plate II Fig 21)'. The three volume abridged edition is open to show the title page and frontispiece which depicts Britannia receiving the fruits of the earth.

The need for additions and revisions continued and in 1807 a revision of Miller's *Dictionary* by Thomas Martyn



(1735-1825) was published, followed by an edition revised by George Don (1798-1856), known as Don's Miller, issued in four volumes between 1831 and 1838. George Nicholson (1847-1908) brought the *Dictionary* into the twentieth century with his revision, the supplement to which was published in 1901. The Royal Horticultural Society took on the task of updating the *Dictionary* under the editor Fred J. Chittenden (1873-1950) beginning in 1939. Progress was slow during the war and Chittenden died before it could be completed but the work was continued by two distinguished RHS members - P.M. Synge, the editor of the RHS publications, and WilliamT. Stearn (1911-2001), the Society's Librarian. It was published in 1951 under the title *The Royal Horticultural Society's Dictionary of Gardening*. By that time it was recognized that the task of keeping up with all the new selections and hybrids made it impossible to be comprehensive. The first four volumes dealt with fundamentals and long-established and widely grown forms of garden plants, while the fifth volume contained lists of recommended varieties of those plants being constantly improved by hybridization and selection, which was meant to be revised and reissued apart from the main work. In 1992 Anthony Huxley (1920-) edited *The New Royal Horticultural Society Dictionary of Gardening*, and this was revised in 2007 by Christopher Brickell with a title change to the *Royal Horticultural Society Encyclopedia of Gardening*.

The first important general book on gardening in Canada was undoubtedly *Canadian Fruit, Flower, and Kitchen Gardener* by Delos White Beadle (1823-1905) published in Toronto in 1872. In his introduction Beadle emphasizes the need for a work which is specifically written for the Canadian gardener: 'Hitherto there has been no work devoted to these subjects which has been written by a Canadian, embodying his own actual experience and observation in these matters, and which a Canadian could rely upon as adapted to his own peculiar necessities'. The book does not employ the dictionary format we have seen in the British examples but covers the three main divisions of home gardening represented in the title - fruit, flower and kitchen (meaning herbs and vegetables), and this is the general pattern also followed in subsequent Canadian works. Beadle, the son of Chauncey Beadle (d. 1863) who ran a successful nursery in St. Catherines in the 1830s, was an expert in fruit growing and the first half of the book is devoted to the fruit garden. Delos Beadle had a law career in New York City before returning to Canada in the 1850s to work in the family nursery, eventually taking over after the death of his father. His book runs to almost four hundred pages 'embodying the experience of a practical man in these departments'.

11 Delos W. Beadle. *Canadian Fruit, Flower, and Kitchen Gardener*. Toronto: J. Campbell, 1872.
Beadle promotes the inclusion of flowers around the home, and his section on the flower garden was included 'to encourage and help those who are striving to twine some flowers in the strands of daily toil'. He notes that despite the limitations of the Canadian climate there are many beautiful plants that can be grown, and advises us to 'set about our homes those things which harmonize better with the natural features of our country'. The section begins with hardy flowering shrubs, describing twenty-three individual species, and continues with chapters on hardy climbing shrubs, hardy herbaceous flowers, bulbous-rooted flowers, bedding plants, three categories of annuals, ornamental grasses, window gardening and roses and concludes with a section on evergreens.

Two Canadian gardening books by two very different women were issued in the first decades of the twentieth century. The first, in 1903, was by Annie L. Jack, neé Hayr (1839–1912) who published a general gardening guide *The Canadian Garden : A Pocket Help for the Amateur*. This was followed in 1918 by a book on ornamental gardening, *The Canadian Gardening Book*, by 'Dorothy Perkins'. Dorothy Perkins (also the name of a well-known climbing rose) was the pseudonym chosen by Adele Austin, daughter of banker James Austin (1813–1897) who had purchased Spadina House in Toronto in 1866.

12 Annie Jack. *The Canadian Garden: A Pocket Help for the Amateur*. Toronto: W. Briggs, 1903.
Like its predecessor this book contains sections on the kitchen, fruit and flower garden but also adds a calendar of monthly reminders. Annie Jack and her husband had a large fruit and

market garden, and by the 1890s were selling fruit trees, shrubs and plants from their farm called Hillside south of Montreal. Jack was a self-taught gardener but evidently read widely on the subject and corresponded with other horticulturists. Despite having twelve children, she found time to write articles for the Montreal Horticultural Society as well as to enter their competitions, and for about five years, beginning in 1898, she wrote a weekly gardening column for the *Montreal Daily Witness*. Her garden attracted many visitors, including the eminent American horticulturist Liberty Hyde Bailey who praised it as being one of the most original in North America.

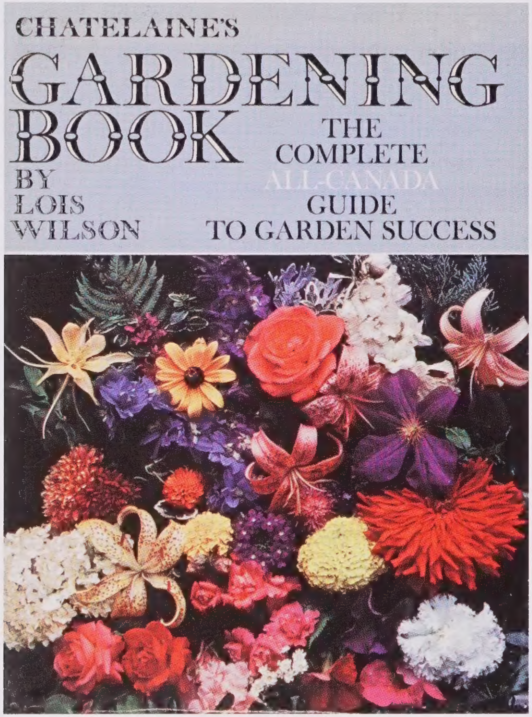
13 Dorothy Perkins. *The Canadian Garden Book*. Toronto: Thomas Allen, 1918.
Very little is known of Adele Austin who was one of three sons and two daughters born to Toronto businessman and financier James Austin. The Spadina property was first landscaped in 1905 and was remodelled by Adele's brother Albert Austin, between 1898 and 1913, when he also added a greenhouse. At that time the property of almost six acres included an orchard, kitchen gardens and a lawn and formal flower beds. The author appears to be speaking from her own experience and to have taken an active role in developing the gardens. Austin's book was intended for suburban gardeners with fairly large properties. With chapters on the rose garden and rockeries, Austin's approach was very much aligned with the British tradition, for example when she lists perennials by colour in the manner of Gertrude Jekyll. Six of the seven chapters are devoted to ornamental gardening, and the last is on the kitchen garden. The Spadina gardens, including the kitchen garden, have been restored and are open to the public.

In 1953 Roscoe A. Fillmore (1887–1968) wrote *Green Thumbs*, advertised on the title page as 'The Canadian Gardening Book'. Fillmore had a fascinating career as a horticulturist, committed Marxist and social activist in the Maritimes which is well documented in a 1992 biography by his grandson entitled *Maritime Radical*. Born in New Brunswick, in 1907 Fillmore began working for a Rochester nursery, where he first learned about rhododendrons, azaleas and roses. In 1913 he returned to the Maritimes to run the largest commercial orchard in New Brunswick, the Saint John Valley Fruit and Land Company. Throughout his life he was active in radical politics and he took a leave of absence from the Saint John orchard to spend the 1923 growing season in Kemerovo in the Kuzbas region of central Siberia, where he organized a market garden to feed the settlement. In 1924 he bought four acres in the Annapolis Valley and started by planting two thousand apple seedlings. When the British market for Canadian apples collapsed he diversified and began to grow vegetables, annuals, perennials and ornamental shrubs and trees at his nursery called The Valley Nurseries. In 1938 Roscoe Fillmore took over from his son Richard to become head gardener for the Dominion Atlantic Railways, which included responsibility for Grand Pré Memorial Park in Nova Scotia, but the family nursery business continued and by the early 1950s had become the largest nursery east of Montreal. Fillmore continued to educate himself on plant propagation, doing experimental work to develop and market hardy strains of plants, particularly rhododendrons and azaleas, which were not commercially available in the Maritimes at the time.

14 Roscoe Fillmore. *Green Thumbs*. Toronto: Ryerson Press, 1953 and *The Growing Question*. Toronto: Ryerson Press, 1957.
Fillmore promoted the nursery on the radio, answering questions from callers and giving advice on common gardening problems. His background in grass roots politics must have made him a dynamic and inspirational speaker. The public response to his radio spots was favourable and he decided to publish a book for everyday amateur gardeners specifically tailored to Canadian conditions. *Green Thumbs* was published by Ryerson Press, went into several editions into the 1960s, and outsold all other gardening books of the time. Roscoe Fillmore is profiled as one of only twenty-four Canadian horticulturists to be included in the *Canadian Nurseryman Centennial Yearbook*, where he is quoted as saying 'In my eighty years I have propagated and grown millions of plants, trees, and shrubs'. He became known as 'Mr. Green Thumbs' and travelled around the region giving talks to horticultural groups. A selection of some two thousand of his questions and answers to gardening queries was published under the title of *The Growing Question* by Ryerson in 1957.

In 1970 Lois Wilson (d. 1993) produced a ground-breaking work for Canadian gardeners, *Chatelaine's Gardening Book*, 'the complete All-Canada guide to garden success'. This reflected and catered to an upsurge of interest in home gardening, particularly ornamental gardening. In the foreword Doris Anderson (1921-), editor of *Chatelaine*, describes Wilson as 'having the zeal of a missionary about gardening' and certainly Wilson was determined to make this a useful and practical guide for ordinary home gardeners across the country. She spent many years putting together a team of consultants which included botanists and horticulturists from the Plant Research Institute of the Federal Department of Agriculture, academics, nurserymen and representatives of the various geographic regions or of specific organizations such as the Canadian Rose Society.

15 Lois Wilson. *Chatelaine's Gardening Book*. Toronto: Maclean-Hunter and Doubleday, 1970.
The book's endpapers reproduce the Plant Hardiness map of Canada, which had been compiled just two years before by C. E. Ouellet, Agrometeorology Section, and Lawrence Sherk (1936-) of the Ornamental Plant Section of the Plant Research Institute of the Canada Department of Agriculture. The book covers both fundamentals of layout and design and the practical aspects of horticulture and is divided into five parts. The first part 'What is your kind of garden?' discusses the full range of gardening possibilities covering balconies and patios, shady gardens, wild flowers and ferns, fragrant gardens and fruit and vegetable gardens. The second part 'Of practical help' gives down-to-earth useful advice on all aspects of practical gardening, and the third part, 'The fine points of growing good garden plants well' discusses



plants by type, from trees to annuals. Part four is devoted to indoor gardening and the final part contains sections on gardening in each geographic region of Canada including the Yukon and Northwest Territories.

Calendars (READING ROOM CORNER CASE)
One of the earliest genres of horticultural writing is the calendar, giving advice on which tasks to undertake throughout the course of the year. This format has ancient origins, probably because it is such a useful way to organize information, answering the all-important question of 'what to do when'. An agricultural text dating to about 1700 B.C. has been reconstructed from several different fragments of cuneiform tablets found at the Sumerian site of Nippur. The restored document, one hundred and nine lines in length, consists of a series of detailed instructions beginning with the flooding of the fields and ending with the cleaning and winnowing of the harvested crops. The Roman writer Palladius wrote an agricultural manual arranged in calendar form, and 'labours of the month' illustrations appear in both medieval books of hours and early printed almanacs.

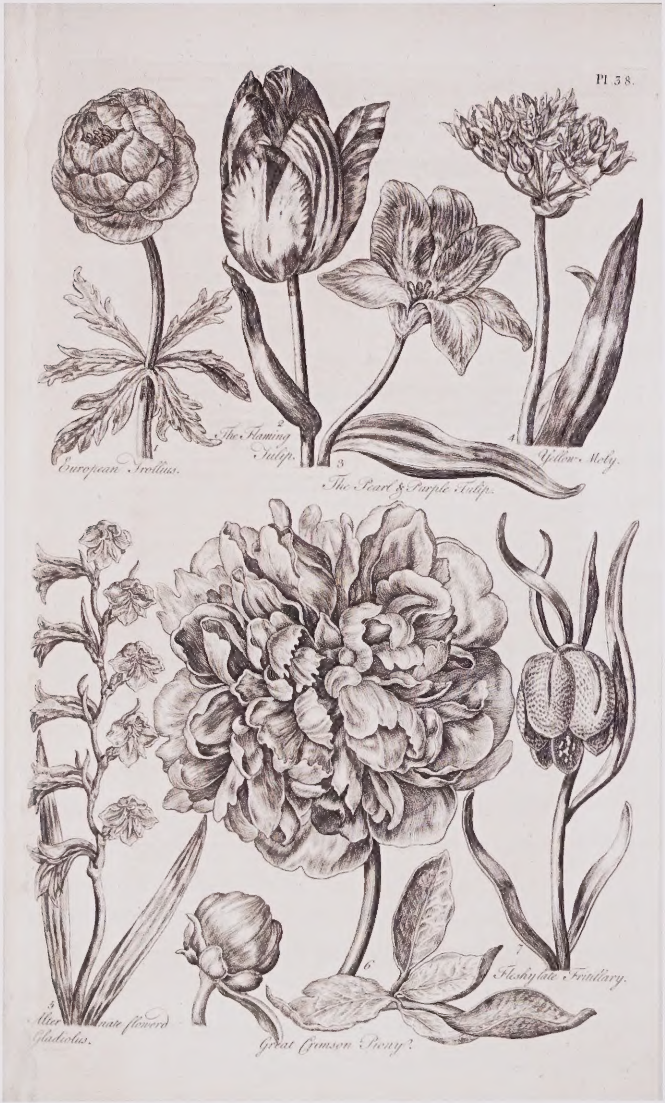
The calendar format is useful for keeping track of horticultural as well as agricultural tasks, and one of the first of these was published in 1664 by John Evelyn, as an appendix to *Sylva*, his monumental work on trees. It was later separately published under the title *Kalendarium hortense*, and issued in many editions during Evelyn's lifetime. In his preface Evelyn justifies the calendar arrangement as being useful and simple, presenting the gardener 'with a compleat cycle of what is requisite to be done throughout every moneth of the year'. He believes that careful planning and organization is the key to success. With so many tasks needing attention, it is imperative that each be done at the proper time and in the proper sequence, otherwise 'how intolerable a confusion will succeed the smallest neglect'. Many later influential writers on gardening, including Philip Miller, also produced calendars. Since local weather conditions are variable and the advice in calendars is intended to be very specific, it was necessary to publish versions adapted to different regions of the country.

16 John Evelyn. *Kalendarium hortense*. London: George Huddleston, 1699.
Each month's entry begins with the number of hours of daylight and astronomical information. Separate instructions are given for the tasks in the 'orchard and olitory garden' (fruit and vegetable garden), and in the 'parterre and flower-garden' (ornamental garden). The last section for each month lists the fruit and flowers which are at their best, or in prime, that month. Evelyn was writing before the introduction of the Gregorian calendar, thus eleven days ahead of our current dates.

17 Philip Miller. *The Gardeners Kalendar*. London: C. Rivington, 1732.
The first edition of Miller's calendar came out the year after his *Dictionary*. It ran to fifteen editions in his lifetime, and was priced at four shillings, making it affordable for most gardeners. It was intended to be a comprehensive guide which could be used alone, or in combination with the more extensive information on specific plants found in the *Dictionary*. The subtitle explains that it 'direct[s] what works are necessary to be done every month, in the kitchen, fruit, and pleasure gardens.'

18 John Hill. *Eden, or, A Compleat Body of Gardening*. London : T. Osborne, 1757.
Sir John Hill (1716?–1775) trained originally as an apothecary but also had experience as a gardener and was a prodigious writer on many subjects including botany and horticulture. Despite his talents he was extremely unpopular figure for his vocal criticism of all matters scientific and horticultural which included attacks on such respected targets as Linnaeus, the Royal Society and Philip Miller. It is evidently because of his bad reputation that he concealed the authorship of this work by using another name on the title page. A number of his other publications were issued anonymously for the same reason. This work was published as weekly numbers from 28 August 1756 to 8 November 1757. The advice given in each part was therefore very timely, providing information on plants and fruits in season that week, along with descriptions and cultural details. Each part is illustrated with plates depicting a number of plants together, many of which were both drawn and engraved by the author.

19 James Justice. *The British Gardener's Calendar, Chiefly Adapted to the Climate of North-Britain*. Edinburgh: R. Fleming, 1759.
Although Miller's calendar was meant to be 'a manual to the whole kingdom', he was gardening in London where the condi-


Pl 58.
1
European Trollius.
2
The Flaming Tulip.
3
The Pearl & Purple Tulip.
4
Yellow Moly.
5
Alternate flowerd Gladiolus.
6
Great Crimson Piony.
7
Fleshylate Fritillary.

tions are very different from the northern parts of the country. Miller's contemporary James Justice (1698–1763) published a Scottish calendar targeted at the 'climate of North-Britain', which covers the same subjects as Miller – the kitchen, fruit and pleasure gardens and the nursery, green-house and stove.

In Canada with its even wider range of climate types, it is almost impossible to produce a calendar that would be useful in all regions. The first to make the attempt was Alden Blair Cutting (b. 1878), an instructor in horticulture at the Ontario Agricultural College in Guelph and a gardening editor and correspondent, who published a general gardening guide in calendar form in 1938. In his preface Cutting emphasizes the need for a book 'more accurate for Canadian conditions' than those published in either the United States or Britain - 'few of either can be read and followed closely by gardeners who ply their hobby in extreme northern climes or even in the ordinary temperate latitudes of this country.' He recognizes that the varied climate of Canada makes it impossible to give accurate planting dates for all parts of the country, and notes that information in the book is generally applicable to central Canada and parts of the Maritimes, with adjustments of one or two weeks necessary for both the Niagara region, and 'points north.'

20 A.B. Cutting. *Canadian Home Gardening the Year 'Round.* Toronto: Musson, 1938.

There is an extensive chapter devoted to each month, with a general introduction followed by separate sections on the flower garden, lawns, shrubbery and roses, the vegetable garden, and the fruit garden. There are tables of recommended varieties, planting plans, and small but helpful illustrations of horticultural techniques such as how to plant a rose bush, cleft planting, and hotbed construction.

Periodicals (READING ROOM CORNER CASE)

Magazines and periodical publications are an important genre in gardening literature because they are both more specific in focus, more timely and less expensive than books. Generally issued quarterly or monthly, they can be targeted geographically to a particular region, limited in scope to particular types of plants (e.g. roses) and tailored to the time of year, thus delivering information at precisely the point in the gardening season when it is needed. In the twentieth century, magazines were supplemented by radio and television programs featuring expert gardeners, often in the form of a question and answer segment. In today's world online magazines and garden blogs reach an even wider audience, and have the added dimension of being a two-way vehicle of communication, using the latest technology to facilitate direct user feedback.

The earliest periodicals pertaining to plants were the illustrated botanical publications which began to be issued in the eighteenth century as a way of disseminating information about new introductions. The first and most influential of these was the *Botanical Magazine*, founded by William Curtis (1746–1799) in 1787, but it had many competitors including H.C. Andrews's *Botanist's Repository* which ran from 1797–1815, Sydenham Edwards's *Botanical Register* issued 1815–1847, the *Botanical Cabinet* published by the nursery firm of Conrad Loddiges from 1817–1833, and *Paxton's Magazine of Botany and Register of Flowering Plants* published from 1834–1849.

Curtis had opened a private botanical garden near London in 1779 and was a passionate student of natural history. His *Botanical Magazine* was highly influential, providing a link between new plant discoveries and the end user, as plants were tested and made their way into cultivation. In the preface to the first edition he explained that he was publishing it in response to requests from the public who wished 'to acquire a systematic knowledge of the foreign plants growing in their gardens' along with 'information respecting their culture'. Gardeners needed reliable information on the identification and cultivation of new plants, and the accuracy and beauty of the illustrations combined with the botanical and horticultural notes supplied by the editors made the journal indispensable. The magazine was issued monthly, with each part consisting of three plates depicting a single plant with accompanying explanatory text. The plates were numbered in one consecutive series from 1 to 9688 (in volumes 1 to 164), making it very easy to reference individual plants.

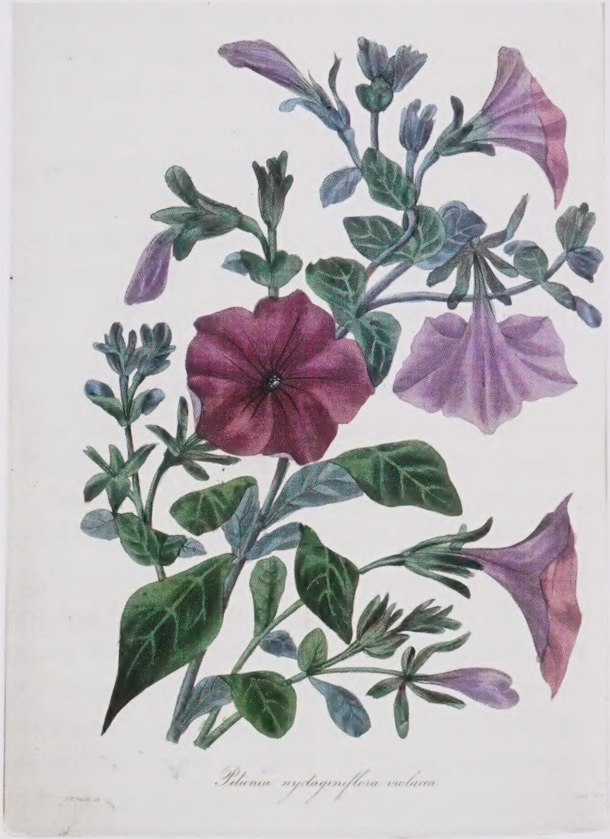
Employing a variety of printmaking techniques including lithography from 1826, the plates were hand-coloured until 1948. The journal has employed many distinguished artists including Sydenham Edwards (1768–1819) who contributed over 1,700 drawings, and Walter Hood Fitch and Matilda Smith who each contributed over two thousand drawings. Browsing through the magazine reveals the constantly changing plant fashions of the day. Orchids were a prominent feature in the period from the 1820s to the 1860s, bedding plants in the 1840s and rhododendrons were often profiled early in the twentieth century. The magazine has been continuously published but the title was later changed to *Curtis's Botanical Magazine*, and its present title, *Kew Magazine*, reflects its long association with the Royal Botanic Gardens at Kew.

21 *Curtis's Botanical Magazine*. London: Edward Couchman, 1827–1829. Vol.3.

The magazine was edited for almost eighty years by distinguished botanists William Jackson Hooker (1785–1865) the first Director of the Royal Botanic Gardens at Kew, and then by his son Joseph Dalton Hooker (1817–1911), who succeeded his father at Kew. The 1829 volume includes profiles on three different species of pentstemon, all new introductions from North America: 'The recent travels of Mr. Douglas and Mr. Drummond among the Rocky Mountains, and in the Northwest part of America, have been the means of enriching our gardens with many highly beautiful species of the genus Pentstemon'. *Pentstemon gracilis* (plate 2945) was grown from seed found near the Red River sent back to England by the naturalists accompanying Franklin's second expedition to North America.

In Britain in the middle decades of the nineteenth century cheaper paper and advances in printing technology stimulated the growth of periodical publication. The expensive and lavishly illustrated botanical journals evolved into a new type of periodical intended primarily as a vehicle for the dissemination of horticultural information to all types of gardeners. The focus shifted from the detailed botanical description of new plants of all kinds, to those ornamental plants which had been found to be worthy of cultivation in the garden or greenhouse. The first of this wave of new journals was John Loudon's *Gardener's Magazine* in 1826. Aimed at an audience of both professional and amateur gardeners and priced accordingly, it drew on his own extensive knowledge of all aspects of agriculture, horticulture, and landscape design, but also included content drawn from a variety of other sources, including the more expensive and exclusive RHS *Transactions*. The *Gardener's Magazine* appeared first as a quarterly but was issued as a monthly from 1831 to Loudon's death in 1843. His wife Jane Loudon (1807–1858) also published a short-lived magazine, *The Ladies' Magazine of Gardening*, issuing just twelve monthly numbers (January to December 1841), each of which included one colour plate, articles by various contributors, a monthly calendar, reviews and gardening questions and answers.

In addition to his many other activities Joseph Paxton (1803–1865) somehow found time to establish a number of periodicals. The first was the *Horticultural Register*, issued monthly between 1831 and 1836, which was in direct competition with Loudon's *Gardener's Magazine*. In 1833 Paxton started another monthly, *Paxton's Magazine of Botany*, which was published until 1848. Two years later he began *Paxton's Flower Garden*, which continued for three volumes until 1853, and was re-issued twice, first in the 1870s and then again in the 1890s. The weekly newspaper, the *Gardener's Chronicle*, was another of Paxton's initiatives, founded by him with three others in 1840. It was hugely successful until well into the twentieth century, functioning partly as a trade publication for professional gardeners.

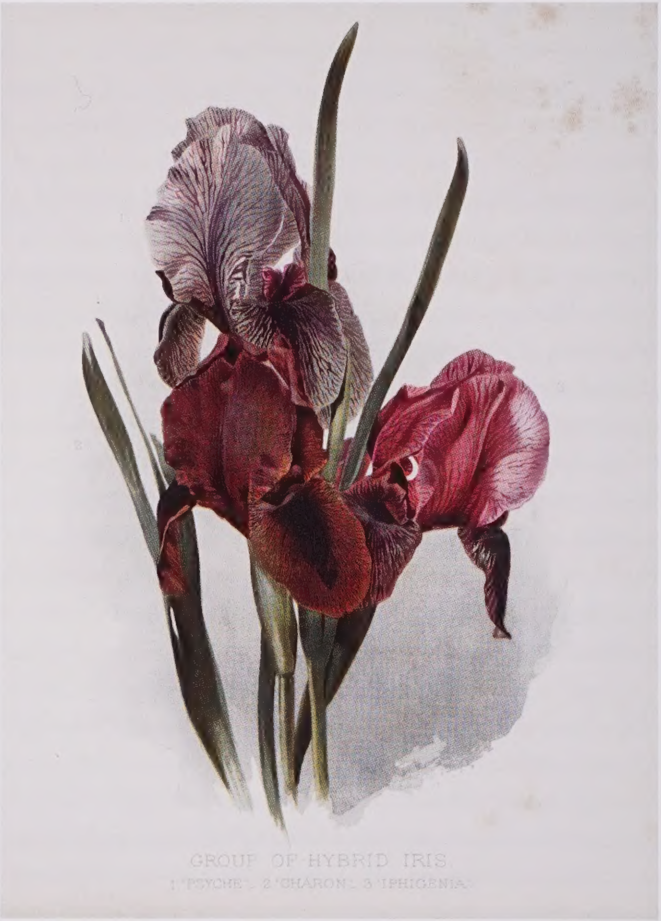


22 *Paxton's Magazine of Botany, and Register of Flowering Plants.* London: Orr and Smith, 1834–1848. Vol.3.

Modestly priced and intended for ordinary gardeners, each part included four engravings, a monthly calendar, and articles on 'operations', tools, insects, garden plans and other practical matters. Paxton was a proponent of colourful bedding schemes and the first volume includes the 'plan of a geometrical flower-garden' based on an elaborate parterre at Stowe. Paxton explains that this layout lends itself to producing 'a splendid show once or twice in the year, spring and autumn' and that 'planting in masses produces the most imposing effect : arrangement of the beds, and contrasting of colours, is the chief thing to be considered'. One of the plants discussed in this volume is the 'Petunia violacea' (*P. integrifolia*), recently introduced from South America, which Paxton praises for 'brilliancy of blossoms and general beauty'. He recommends it for bedding, a use which continues to this day: 'the flowers show to the greatest advantage if a whole bed be devoted to them'. In the second volume he illustrates two more petunias, including 'Petunia nyctaginiflora violacea' a hybrid readily propagated from cuttings which he had raised himself at Chatsworth.

William Robinson (1838–1935) like Paxton was another prolific writer, who used periodicals as a way of promoting his own views on gardening. In addition to his considerable book publication he founded a succession of popular periodicals beginning with *The Garden* in 1871, which he edited until 1899, quickly followed in 1879 by *Gardening Illustrated*, a very popular magazine which continued to be published until 1956. His final venture was the lavishly produced *Flora and Sylva*, issued for just three years from 1903 until 1905.

23 William Robinson. *Flora and Sylva : A Monthly Review for Lovers of Garden, Woodland, Tree or Flower*. London: Eyre & Spottiswoode, 1903–1905. Vol.3.
Robinson wanted a beautiful publication, 'done in the best way as regards illustrations, paper, and printing'. The illustrations are a mixture of finely detailed and executed wood engravings, and excellent colour printed plates. The title reflects Robinson's love of trees, and he remarks in the preface to the first volume that 'every day of my life I see more and more the beauty and value of the tree'. The three volumes include a total of thirty extended profiles on 'the greater trees of the northern forest'. One of the plants described in the third volume and beautifully illustrated is a group of hybrid iris, which Robinson bred himself at Gravetye. He names them 'Regio-cyclus iris', produced by crossing plants of the Regelia group with the best Oncocyclus irises.



The earliest horticultural periodical published in Canada was the *Canadian Horticulturist*, edited by Delos White Beadle (1823–1905) who had authored the first significant book on gardening in 1872. Delos Beadle was one of the founders of the Fruit Growers' Association of Upper Canada and operated a nursery in the Niagara region for over thirty years. The magazine was published as a monthly from 1878 to 1914, with Linus Woolverton (1846–1914), another Niagara area nurseryman, succeeding as editor in 1886 when Beadle retired. Although the focus was on fruit, in the early years the magazine covered all aspects of horticulture and gardening and was aimed at the ordinary farmer and home gardener.

24 *The Canadian Horticulturist.* St. Catherines: Fruit Growers' Association of Ontario, 1878–1914 Vol.3.

The first volume includes entries for sixty different varieties of apple, including the 'McIntosh red', introduced 'some seventy years ago' from a tree originating in Dundas, Ontario. Beadle says that although he has 'not had this variety long enough in my orchard to speak positively of its bearing qualities' he planted another sixty trees in addition to the ten he already had and believes that it will live up to its good reputation. The volume for 1880 is the only early volume with colour plates. It has two plates supplied by the Rochester nursery firm of Ellwanger and Barry, printed by George Frauenberger, one of the lithography firms in Rochester specializing in coloured printing for nursery catalogues. The plate depicts the 'Sharpless strawberry', first raised from seed by a Mr. J.K. Sharpless in Pennsylvania and highly recommended by the Pennsylvania Fruit Growers' Society.

In Canada, with its small but very dispersed and diverse market, facing stiff competition from American publishers, magazine publication has always been a risky venture. One of the longest lasting has been *Canadian Homes and Gardens*, published by Maclean-Hunter between 1925 and 1960. The first issue included contributions by three influential women practitioners - landscape architect L.A. Dunnington-Grubb (1877–1945), horticulturist and plant hybridizer Isabella Preston and gardener Adele Austin who had published *The Canadian Gardening Book* in 1918. The 1990s were a particularly lively time for gardening magazines beginning with *Canadian Gardening* in February/March 1990. It was soon challenged on the national stage by *Chatelaine Gardens*, an offshoot of the long-running national magazine which began publication with the issue for summer 1995. The following year *Toronto Life* sponsored its own regional magazine *Toronto Life Gardens*, but it only lasted a few issues before being merged with *Gardening Life* in 1997 which in turn ceased publication in 2006. Three regional magazines now serve specific markets with *Gardens West* (for B.C. and the Prairies) giving rise to *Gardens Central* (Ontario and Quebec) and *Gardens East* (Atlantic Canada). *Canadian Gardening* has recently taken on a new competitor as Canada's national gardening magazine in *Garden Making*, the premier issue of which appeared in spring 2010. Founded and edited by well known Canadian gardener Beckie Fox, a previous editor of *Canadian Gardening*, the magazine is a quarterly rather than a monthly. In a recent e-mail exchange Fox stated that she founded the magazine with her husband, believing that there was an audience of under-served enthusiastic gardeners at all levels 'who want thorough, practical information about growing plants and making a garden'. The magazine benefits from the expertise of freelance writers and photographers and has a policy guaranteeing that at least seventy pages of articles and photos appear in each issue exclusive of advertising.

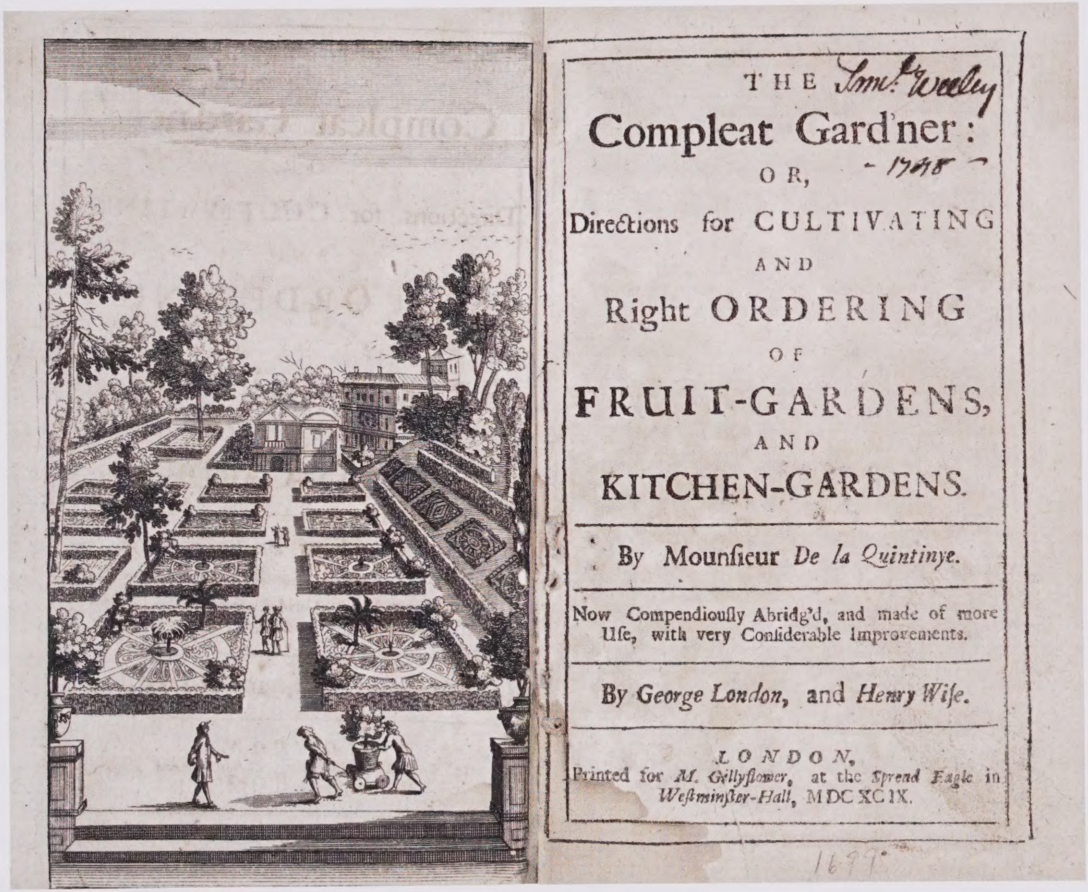
Many useful periodicals are published by specialist groups, such as rose or alpine societies, but one other category of general interest is the journal published by horticultural societies both local and national for their own members. Often these are short-lived as they are dependent on volunteers and generally have no supporting infrastructure.

25 *The Canadian Horticultural Magazine*. Montreal: Montreal Horticultural Society, 1897–1899.
This journal was published by the Montreal Horticultural Society but lasted only two years, from April 1897 to March 1899. It featured articles on fruit, flower and vegetable growing, and related topics such as an illustrated essay on Canadian wild flowers, by contributors in the Quebec region including Annie Jack. The first serial publication of the London Horticultural Society was its *Transactions*, published from 1812 until 1842, followed by its *Journal* from 1846 to 1855. It was discon-tinued for a brief period but was reborn in 1866 as *Journal of the Royal Horticultural Society*, and continues today under the title *The Garden*. From the beginning it included contributions from many of the best horticulturists, gardeners and botanists of the day.

26 *Journal of the Horticultural Society of London*. London: The Society, 1846 -.
The Horticultural Society sponsored its own plant collectors and frequently included reports from the field in their *Journal*. Robert Fortune's 1843–1846 trip to China resulted in the introduction of many beautiful flowering plants and shrubs including azaleas and viburnums. In this article in the volume of the *Journal* published immediately following his return in 1846 Fortune describes encountering 'weigela rosea' (*Weigela florida*) in a garden on the Island of Chusan, where he 'immediately marked it as one of the finest plants of Northern China'. He describes it as being easy to cultivate from cuttings, and anticipates that it will prove hardy in the British climate. In the twentieth century many attractive hybrids have been developed and there are now close to two hundred named cultivars.

The kitchen garden : fruit and vegetables

The cultivation of fruit, vegetables and culinary and medicinal herbs for domestic use in a segregated, usually walled or hedged enclosure, has classical roots and can



THE Saml Wesley
Compleat Gard'ner:
- 1748 -
OR,
Directions for CULTIVATING
AND
Right ORDERING
OF
FRUIT-GARDENS,
AND
KITCHEN-GARDENS.

By Mounſieur *De la Quintinye.*

Now Compendiouſly Abridg'd, and made of more
Uſe, with very Conſiderable Improvements.

By *George London*, and *Henry Wiſe.*

LONDON,
Printed for *M. Gillyflower*, at the *Spread Eagle* in
Weſtminſter-Hall, MDCXCIX.

1699.

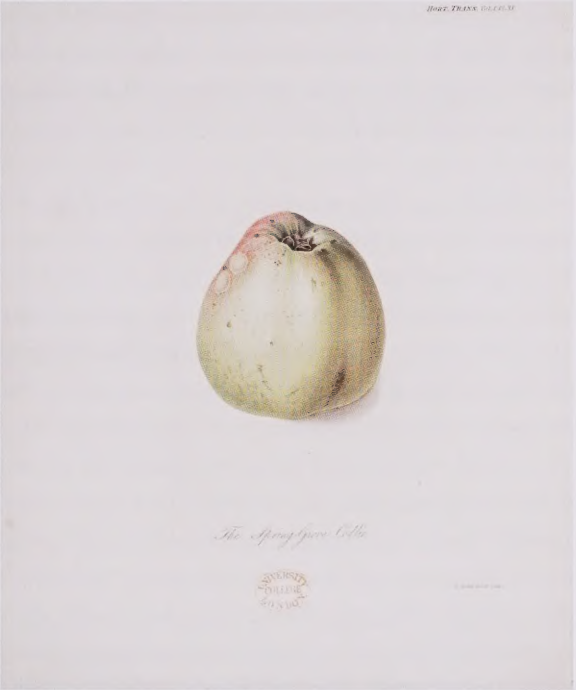
still be found all over the world today. The formal square or rectangular garden laid out in a grid-like pattern which we associate with kitchen gardens arose out of a bed and channel system, devised in Mediterranean gardens which required irrigation. Long narrow raised beds were divided by paths which doubled as water channels. In Britain, although there was sufficient year-round rainfall, the same overall design of straight beds divided by paths was adopted as the model, and continued in use after the fall of the Roman Empire. The advantages of sowing seed in rows to facilitate thinning, weeding and watering is evident to any gardener. The beds can be of any length, but all writers from the classical period on recommend that they be no wider than twice an arm's length so that plants can be cultivated from each side without walking on the beds.

One of the oldest detailed garden plans we have is that for the Benedictine abbey at St. Gall, Switzerland which dates from about 820. It shows three different garden areas within the precincts: a medicinal herb garden near the infirmary containing rosemary, cumin, sage and mint as well as roses, iris and lilies; a vegetable garden with lettuce, parsley, radishes, root vegetables such as onions, leeks, carrots and garlic, and brassicas; and an orchard which doubled as a cemetery and contained fruit and nut trees. The garden was enclosed for protection from the elements, and to keep out unwanted intruders, both animal and human. The garden plan depicted in Lawson's *A New Orchard and Garden* eight centuries later shows much the same arrangement, with an outer fence and two rows of trees enclosing separate areas for the kitchen garden, a knot garden, and other ornamental plantings. By the end of the century the French formal influence was evident in the frontispiece to the English translation of Jean de la Quintinie's *The Compleat Gard'ner*. Many an ordinary home garden in both Britain and Canada still combines fruit, vegetables and flowers together, whether in informal cottage gardens or in formal squares and grids. The separation of flowers, fruit and produce into different areas began early in the seventeenth century as the range of plants being grown expanded, requiring new and different methods of cultivation. The flower-filled parterres were laid out to be visible from the best rooms in the house, while the kitchen garden was eventually moved out of sight, screened from view by hedges and walls. With the introduction of heated walls, at first warmed by dung and later by stoves, the kitchen garden became large and unsightly, valued for its utility rather than beauty. In the 1770s William Hanbury (1725–1778) summed up this development by explaining that the vegetable garden should be out of view because it 'ill suits with the present taste of designing' and recommended that it be placed behind the stables.

Significant advances in the construction of glasshouses were introduced by Joseph Paxton who designed both the Great Conservatory at Chatsworth and the Crystal Palace which housed the Great Exhibition of 1851. At roughly the same time the repeal of the tax on glass meant that it was economically feasible to add greenhouses and conservatories to even relatively modest homes in both town and country. The forcing of flowers and fruit was in and of itself a status symbol, and the glasshouse became the centrepiece and pride of the kitchen garden. The garden was intensively maintained by teams of gardeners and attractively laid out, with the walls as well as the glasshouses used for training fruit and vines. Today ornamental kitchen gardens are again highly fashionable. The attractiveness of kitchen garden inspired by the example of the *potager* at the Château de Villandry in France created early in the twentieth century, has led to a resurgence in this type of gardening. Christopher Lloyd (1921-2006), in one of his weekly *Country Life* articles in 1971, praised a bedding-out scheme at Kew devoted entirely to ornamental vegetables. An unusual leaf-shaped potager at the Château de la Chatonnière in the Loire Valley, in which the produce is grown solely for its ornamental qualities takes this approach to an art form in which each vegetable bed is designed and maintained as thoughtfully as a perennial border. Ornamental vegetables now commonly make an appearance in other areas of the garden and it is not uncommon to find highly decorative vegetables such as rainbow-coloured swiss chard and red kale in a mixed border with other types of ornamental plants. The horticultural techniques that were developed in order to grow such a wide range of plant material within the kitchen garden necessitated a specialized literature and a few select examples are discussed in the following section.

Fruit

Archaeobotanists have recently found evidence that the domestication of the fig in the Near East may predate the introduction of cereal crops such as wheat and barley which are usually thought of as the earliest examples of plant domestication. Ancient figs found at Gilgal I, a village in the Lower Jordan Valley, were compared to modern wild and domesticated variants and it was determined that they were a variety of fig which must have been selected and propagated by humans. This type of fig can only be reproduced vegetatively, and therefore relies on humans for survival. The Roman agricultural writers devoted considerable space to fruit, especially the grape, olive and date, and were familiar with a variety of propa-



gation techniques including grafting. For example, Cato provides detailed information on various methods for the grafting of olives, figs, pears and apples, and he describes bud grafting as well as layering for fruit trees.

In both Britain and Canada some of the earliest horticultural works to be published were those on fruit growing, particularly tree fruit such as apples, but also soft fruit including vines (meaning grapes). This can perhaps be accounted for by the importance of fruit in the diet as one of the only sources of sweets for culinary use. Fruit lent itself to preservation, could be used to make alcoholic beverages such as wine and cider, and was often an excellent source of revenue as excess production could be sold. The need for texts on fruit growing could also be a consequence of the more complex techniques of grafting, pruning and training which were necessary, compared with other types of horticulture. Later the growing of exotic fruit, especially the pineapple, which required protected cultivation in heated greenhouses, also necessitated a specialized literature of its own.

Fruit growing, perhaps more than any other horticultural pursuit, has attracted passionate and even fanatical adherents. During the Commonwealth period in Britain Puritan writers popularized the view that there were spiritual justifications for growing fruit. The title page to *A Treatise of Fruit-Trees* by Ralph Austen (d. 1676) includes a verse from Amos 4:4: 'They shall plant gardens and eat the fruits of them'. Austen was an Oxford nurseryman and member of Cromwell's Parliament who dedicated himself to the cause of fruit. The first two editions of his work, published during Cromwell's regime, included a separate section titled 'The Spiritual Use of an Orchard', in which each process (grafting, transplanting, etc.) is likened to some stage in a Christian's life, but this was dropped in later editions. The Puritan's approach to gardening was a practical one, with the emphasis on what could be grown for use and profit.

27 Ralph Austen. *A Treatise of Fruit-Trees : Shewing the Manner of Planting, Grafting, Pruning, and Ordering of Them in All Respects*.The third impression, revised, with additions. Oxford : William Hall, 1665.
Austen's book was the first important work on the subject and he was undoubtedly the greatest authority on fruit in his day. Although his elaborate justifications for fruit growing seem excessive to us today, he did provide sound advice, 'according to the rules of experience gathered in the space of thirty seven years' as he informs us on the title page. Austen recommends the best varieties of each fruit, and gives instructions for grafting, transplanting, pruning, training on walls (*espalier*) and how to remedy diseases. He also includes a long section in which he corrects the errors found in previous authors, including some of the myths propounded by the classical authors: 'Some great and learned authors have asserted very weak things, and altogether untrue'.

More than a century later Thomas Andrew Knight (1759–1838) was a strong proponent for adopting a scientific approach to fruit growing. He carried out both agricultural and horticultural experiments at his farm and later at his brother's large estate at Downton Castle, near Ludlow, Herefordshire. Knight was President of the Royal Horticultural Society and a friend and correspondent of Joseph Banks (1743–1820). In 1797 he published the results of his experiments with fruit cultivation in *A Treatise on the Culture of the Apple & Pear*. He had noticed that the Golden Pippin and other old varieties of apple and pear, which had been praised by earlier writers such as Parkinson and Evelyn, no longer produced healthy offspring when grafted. He experimented with various methods of grafting and also with controlled cross-pollination to produce new varieties. Knight cautioned his readers not to graft from old, diseased stock, to be on the lookout for insect pests and 'canker', and to be particularly wary of buying from nurserymen who are 'much in the habit of promising what they cannot perform'.

Since wine has long played an essential part in human culture, particularly in the Christian tradition, it is not surprising that the culture of the vine, or grape, has warranted an extensive literature of its own. William Speechly (1733–1819) writes in his preface to *A Treatise on the Culture of the Vine* that 'no part [of horticulture] affords more agreeable amusement, or yields more solid satisfaction and advantage, than that refined and elegant branch of it, which concerns the forcing of fruits, natives of warmer climes; and amongst these, though the variety of them be so great, the Vine stands foremost and most conspicuous.' Grapes for wine had been grown in Britain under the Romans, and vineyards were attached to monastic houses and continued to be an important part of horticulture into the seventeenth century. The wife of the French ambassador, Madame de la Broderie, sent thirty thousand vines to Robert Cecil, 1st Earl of Salisbury, (1563?–1612) for his new vineyard at Hatfield in the first decade of the seventeenth century. The gardener to Charles II, John Rose (1629–1677), author of *The English Vineyard Vindicated*, encouraged grape growing and distributed vines to other gardeners, and Thomas Fairchild (1667–1729) had a vineyard at his nursery in Hoxton as late as 1722. However, vine culture gradually declined and by the time of Speechly's influential book of 1790 he is writing mainly of the cultivation of table grapes, not of grapes grown in the open for wine. Speechly had previously written a work on the pineapple, which was certainly the most fashionable of the exotic fruits being grown in the eighteenth century.

28 William Speechly. *A Treatise on the Culture of the Vine*. York: G. Nicol, 1790.

Speechly was the son of a farmer and trained as a gardener at various estates before becoming head gardener to the third Duke of Portland at Welbeck in Nottinghamshire. He designed and built new hothouses at Welbeck, and was known in particular for the design of a hothouse in which both vines and pineapple could be grown together. Fifty varieties of grape are described in the *Treatise*, and detailed cultivation notes are given including chapters on pruning, watering, grafting and pests.

If outdoor vines are a risky proposition in Britain, growing grapes for wine was considered to be even more problematic in North America. Attempts had been made from colonial times to grow the European grape (*Vitis vinifera*) in America, particularly in the Carolinas and Georgia with mixed success. The Canadian wine industry had its first champion in Justin McCarthy de Courtenay (1820–1871), an Englishman who had gained some experience in the French wine industry.

29 J.M. de Courtenay. *The Culture of the Vine and Emigration*. Quebec: Joseph Darveau, 1863.

In 1859 de Courtenay proposed to the Quebec government that it subsidize his attempt to establish vineyards and produce wine but when his views on grape cultivation were refuted by Prof. Hinks of University College in Toronto, his request was turned down. In this pamphlet he outlines his arguments for the viability of the industry, arguing that the quality of the wine depends chiefly on the methods of cultivation of the vine and not on the choice of species grown. He believed that the hot summers and short growing season of Lower Canada was an advantage, and he demonstrated that he was able to grow and harvest varieties of native grapes and produce wine from them. De Courtenay argued that emigration from southern Europe would be greatly encouraged if there was a native wine industry and that such an industry 'would create an entire revolution in our commercial, social, and political position'. In the mid-1860s he collaborated with Henry Parker, who had operated a vineyard from 1858 at Clair House in the Cooksville area of Ontario, and they were able to produce substantial quantities of wine there for a number of years.

Vegetables

Vegetable growing has long been a fundamental component of home gardening, and is often the first means of introducing people to horticulture. In Britain in the last quarter of the twentieth century eighty percent of households had some type of private garden, and seventy percent of those included vegetables; in Canada vegetable seeds now outsell flower seeds. At first out of necessity, and lately given impetus by such trends as the local food movement, vegetable growing is now immensely popular. People enjoy eating fresh produce grown through their own efforts, even when produce is cheap and readily available in stores. Many of the basic horticultural techniques and tools for growing vegetables have not changed since classical times. The choice of a south facing location to capture the maximum amount of sunshine, and the need for good drainage and for soil amendment and crop rotation have long been known. Sowing seed followed by thinning the seedlings is an unchanging routine that

every home gardener experiences and cherishes. In a letter to Christopher Lloyd published in a collection of their correspondence, *Dear Friend and Gardener*, the great British plantswoman Beth Chatto writes of the satisfaction and sense of peace she feels from her work in the vegetable garden throughout the year 'from seed sowing to the moment of carrying squeaky fresh vegetables and salads to the table'.

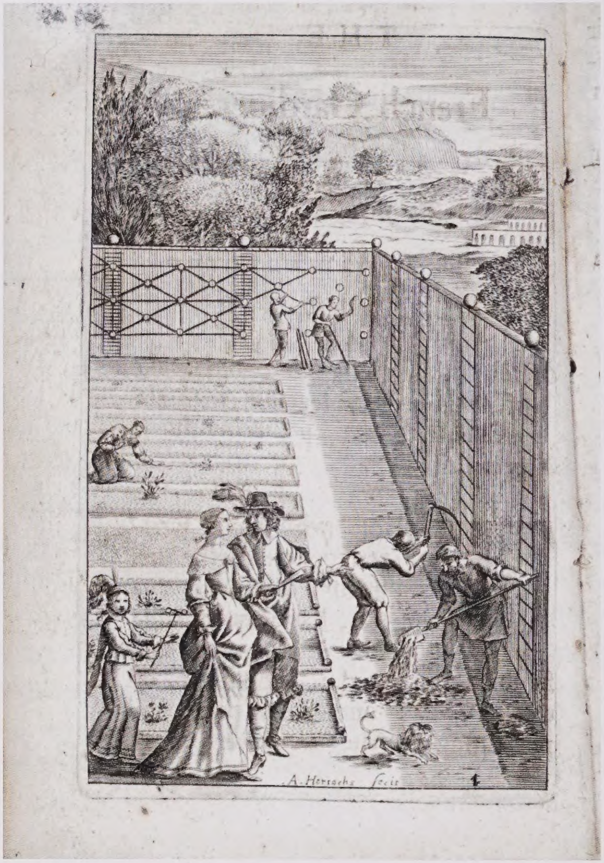
Growing vegetables for home use requires maximizing productivity in a small space and some of the methods to achieve this, which we think of as modern, have actually been practised for many centuries. Raised beds have been used from time immemorial to improve drainage and minimize the need for weeding and watering as well as to extend the season since the ground warms up sooner in the spring. Intercropping, or companion planting, was another method employed from an early period to increase the amount of produce that could be grown at any one time. For example, Thomas Hill (b. ca. 1528) recommended sowing fast-growing salad plants such as radishes in the beds with slower maturing leeks and coleworts. The desire to extend the growing season, both by starting earlier and by growing plants later into the fall, began to take the vegetable garden away from the open ground and under various types of shelter. Advances such as walls, beds and trenches heated with dung, and protected growing using a variety of coverings including glass, all enabled the garden to be productive for more months of the year. Nurserymen and seedsmen also contributed by selection and breeding, producing an ever-greater range of vegetables with desirable characteristics for home gardeners.

John Evelyn's first horticultural publication was on vegetables – a translation of Nicolas de Bonnefons's *Le jardinier françois*, which Evelyn considered the best work on vegetable gardening then available. Evelyn spent time in Europe during the Civil War period and during his travels he visited gardens and parks in France, Italy and the Low Countries, making notes on them in his diary and evidently finding Dutch and French methods of horticulture vastly superior at that time to those practised in England.

30 John Evelyn. *The French Gardiner*. Third edition. London: Benjamin Tooke, 1672.
This work covers all aspects of vegetable gardening, beginning with melons and cucumbers (raised together in the same hot bed), followed by chapters on 'artichocks, chardons, and asparagus', 'cabbages and lettuce of all sorts', 'roots' including beets, carrots and parsnips, leafy vegetables such as sorrel, endive and spinach, 'beans, peas and other pulses' and 'odoriferous plants' such as onions, garlic and leek. Detailed practical instructions on preparing the soil, sowing, transplanting, and harvesting are given throughout.

31 John Evelyn. *Acetaria*. London: B. Tooke, 1699.
Evelyn encouraged his countrymen to eat more vegetables, and published a work *Acetaria : A Discourse of Sallets*, in which he discusses thirty-five varieties of greens and includes a table giving the months they can be harvested as well as notes on their cultivation and use.

As new vegetables were introduced there was a need to disseminate information about how best to grow and harvest them. Even such ubiquitous plants as the tomato and potato were once deemed exotic in European gardens. Steven Switzer (1682–1745) was a talented gardener who had trained with George London (ca. 1640–1713) and Henry Wise (1653–1738) at their Brompton Park nursery before setting up his own establishment in London as a seedsman by the 1730s. In his preface to a work on the cultivation of newly introduced 'foreign' vegetables such as 'Italian Brocoli and Spanish Cardoon' he explains why the work was written. He says that when people purchased seeds from him they 'knew not how to manage them' and that therefore he was 'often oblig'd to write a great many directions in a day, which took up more time and trouble than all his other business'.



32 Steven Switzer. *A Compendious Method for the Raising of the Italian Brocoli, Spanish Cardoon, Celeriac, Finochi, and other Foreign Kitchen-Vegetables*. Third ed. London: T. Astley, 1729.

In his notes on broccoli, which he describes as a kind of Italian kale or colewort, he gives instructions on when it should be sown, how and when to transplant the seedlings, what type of manure is best (pigeon's dung), how to harvest it by successive cuttings, and how to protect it in the open ground (with hilling and hot dung) to enable the season to be extended into winter.

In the section on vegetables in his comprehensive book *A Complete Body of Planting and Gardening* first published in 1770 William Hanbury lists and individually describes a total of sixty-one vegetables, including twenty-two herbs and two flowers (pot marigold and nasturtium) and the common mushroom. The tomato at that time was still relatively little known in England and it is interesting to read his notes on its use and cultivation. Hanbury states that it 'is used in Italy and all the southern countries of Europe' and that 'from them we have learnt the use of it; for before, we held it unwholesome; nay, even poisonous'. He remarks that in Italy, Portugal and Spain 'the inhabitants eat them as we do cucumbers, with oil, pepper, vinegar, and salt', as well as using them in soups and sauces. Considering the vast number of seeds of heritage and new varieties of tomato available today, it is surprising to read that at that time in England 'there are several sorts ... but one only seems worth cultivating'. The cultural notes however are familiar and remain relevant today: 'they should not be suffered to lie upon the ground, but should be supported by sticks, as they advance in height'.

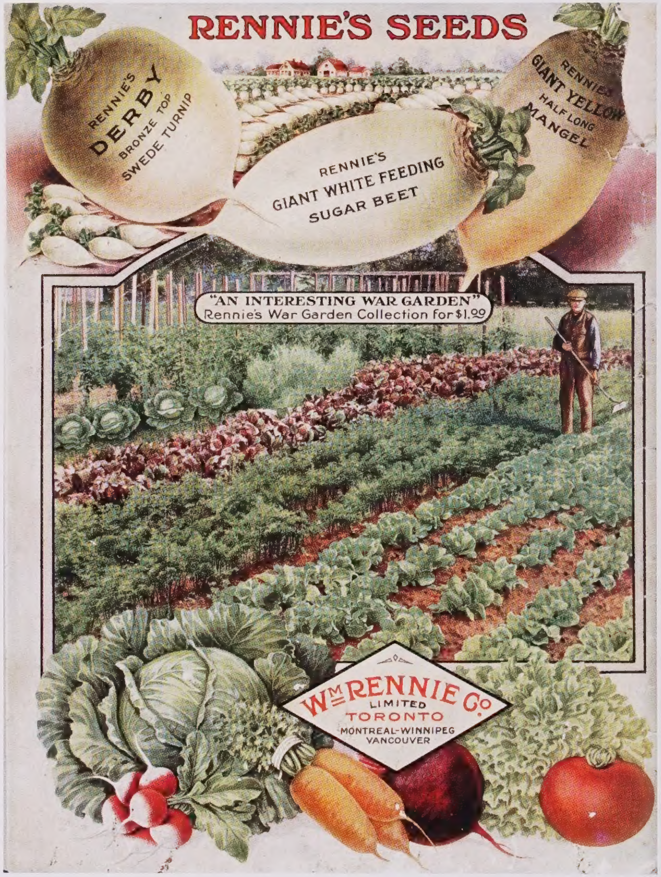
Gardeners in both Britain and Canada contributed to the war effort during both world wars by increasing the quantity of home-grown food. Labour and transportation shortages impacted commercial production and raising food at home alleviated the pressure and made more food available for the war effort. Both home gardeners and commercial growers were urged to plant vegetables in place of ornamental plants. Nurseries also contributed to the cause, with advice and special offers on vegetable seeds. In their 1918 catalogue Rennie's promoted vegetable gardening as the duty of 'every loyal Canadian', stating 'We cannot all shoulder a gun, but most of us can handle a spade'.

33 *Rennie's Seed Annual 1918*. Toronto: Wm. Rennie Co., 1918.

William Rennie (1835-1910) founded the William Rennie Company in Toronto in 1870 later expanding to Montreal, Winnipeg, and Vancouver and becoming the country's largest seed merchant. The firm remained in business until it was eventually taken over by Steele-Briggs in 1961. On the back cover of their 1918 catalogue they advertised their 'war garden collection', for just $1.00. They offered several different versions, including an early collection, a northern collection, and a small garden collection. The complete collection included beans, beet, cabbage, corn, cucumber, lettuce, turnip, onion, parsnip, peas, radish, squash and tomato.

In our own time Rosemary Verey and Joy Larkcom were among those in Britain who popularized the ornamental kitchen garden or *potager*. In Canada we have our own vegetable gardening proponents among a new generation of gardeners. Toronto gardener, writer and photographer Gayla Trail has published two acclaimed books on growing edibles, including tips on achieving highly productive results in small urban spaces, even when growing plants in containers rather than the open ground.

34 Gayla Trail. *Grow Great Grub: Organic Food from Small Spaces*. New York: Clarkson Potter, 2010.
Gayla Trail is reaching a younger generation of enthusiastic gardeners anxious for practical, detailed advice who are accustomed to seeking information online as their first choice. Through her gardening blog YouGrowGirl, which she started in 2000, Trail is sharing her own proven experience in growing plants in challenging urban environments. Her third work on edibles, *Easy Growing: Organic Herbs and Edible Flowers from Small Spaces*, published in February 2012 is also available as an e-book on various platforms.


RENNIE'S SEEDS
RENNIE'S DERBY BRONZE TOP SWEDE TURNIP
RENNIE'S GIANT WHITE FEEDING SUGAR BEET
RENNIE'S GIANT YELLOW HALF LONG MANGEL
"AN INTERESTING WAR GARDEN"
Rennie's War Garden Collection for $1.00
WM RENNIE Co LIMITED
TORONTO
MONTREAL-WINNIPEG
VANCOUVER

Flowers

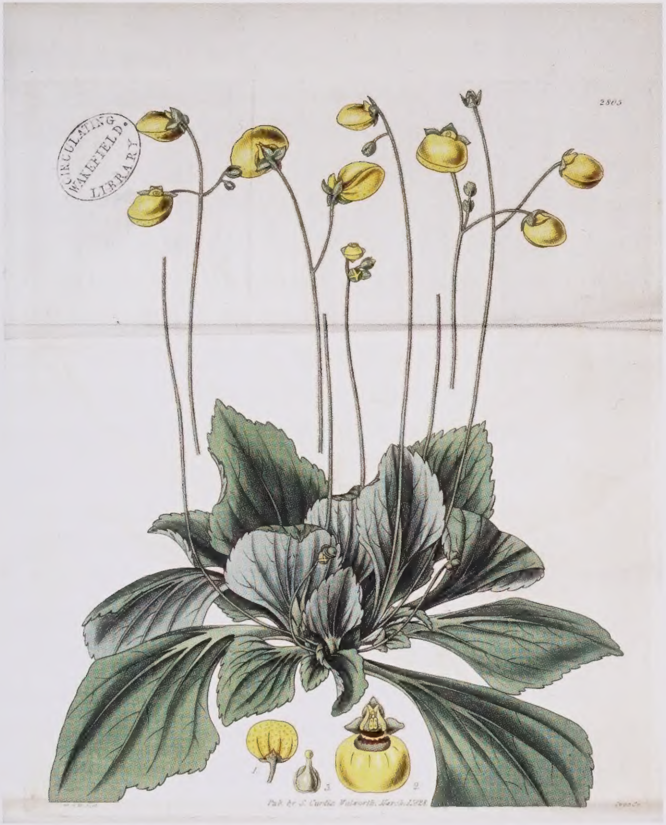
Some of the earliest works on flowers were those written by or for florists (gardeners who grew individual specimens for show) and these are included in the section on flower shows later in the exhibition. The literature on flower gardening *per se* did not become extensive until the late nineteenth century, and then continued to predominate throughout much of the twentieth century. The choice of flowering plant material available to British gardeners from their own flora prior to the sixteenth century was quite limited, and a satisfactory display was possible only in spring and early summer. In fact, in order to avoid having empty beds for a large part of the year and provide colour for a longer period, many of these early elaborate formal designs were made with coloured sand, gravel or other non-plant material. In 1683 in the second edition of his *Systema Horti-culturae* John Worlidge (fl. 1669–1698) lamented the loss of the flower garden and its replacement with 'gravel walks and grass-plots' which 'have banish'd out of their gardens flowers, the miracles of nature, and the best ornaments that ever were discovered to make a seat pleasant'. While flowers did not disappear entirely from gardens and there were always individual passionate gardeners and collectors who devoted themselves solely to flowers, by the early eighteenth century the formal flower garden no longer held pride of place below the main façade of the country house. The landscape movement for which Britain is still justly renowned created extensive green parks around the house which, while rigorously planned and maintained, gave the appearance of a natural landscape extending outwards. This was a great contrast and departure from the inward-looking garden laid out in formal straight lines and patterns which had prevailed until then. In his *History of the Modern Taste in Gardening*, Horace Walpole (1717–1797) summed up this development when he famously said of landscape designer William Kent (1685–1748) that 'He leapt the garden fence and saw that all nature was a garden.'

As more and more plants poured into Britain from around the world, and as technical and horticultural advances continued to be made in the greenhouses of gardeners in both town and country, there was a return to the creation of floral displays for seasonal effect. John Loudon, the extraordinarily prolific writer and landscape designer, popularized what became known as the gardenesque style, which brought beds and borders for flowers back to a prominent place in the garden. Loudon specifically championed and reached out to those in the middle class who were creating the new suburban gardens finding a place throughout increasingly industrialized Britain. After his death, his wife Jane Loudon took up the cause, writing specifically for other women gardeners and encouraging them to take an active role in garden making, which had chiefly been the domain of men until that time. Jane herself had no horticultural training or interest when she married Loudon, but soon became a genuine partner in the multitude of horticultural activities in which he was passionately engaged, and acted as his secretary when health problems made it impossible for him to write. When they married in 1830 John Loudon had already issued his 1500 page *Encyclopaedia of Gardening*, which covered not only all aspects of horticulture, botany and garden design but also included a world-wide survey and history of gardening. He had also begun publishing the *Gardener's Magazine*, which he used as a vehicle for disseminating his own views on subjects ranging from critiques of individual gardens to urban planning and education reform.

Jane Loudon's first book on horticulture was entitled *Instructions in Gardening for Ladies*, published in 1840, followed by *The Ladies' Companion to the Flower-Garden*, the first edition of which appeared in 1841. This was the first of a series of five books on ornamental plants, the remaining volumes dedicated to bulbous plants, perennials, annuals and greenhouse plants. These were the first books written by a woman, that were targeted at other middle class women who wanted to garden for themselves. While there had been distinguished women gardeners throughout history they were members of the nobility or aristocracy who could draw on a team of professional gardeners and designers. In the mid-nineteenth century there were for the first time married women such as Louisa Lawrence (1803–1855), to whom the book is dedicated: 'as a zealous patron of floriculture, an excellent botanist, and, above all, as one of the first lady-gardeners of the present day', who themselves both planned and maintained their own gardens. It is this audience, working in relatively modest gardens in the suburbs of the cities, to whom Jane Loudon spoke. As she herself had come to gardening later in life, she approached the subject as an amateur conveying in a simple, straightforward manner all the basic knowledge she herself had learned from her husband, one of the greatest experts of his day.

35 Jane Loudon. *The Ladies' Companion to the Flower-Garden*. 4th ed. London: William Smith, 1846.
This book is arranged alphabetically, covering 'all the ornamental plants usually grown in gardens and shrubberies with full directions for their culture'. It includes a calendar outlining activities to be done in the flower garden each month, as well as an appendix with suggestions for garden layouts. The frontispiece depicts a bouquet made up of four plants named for John Loudon.

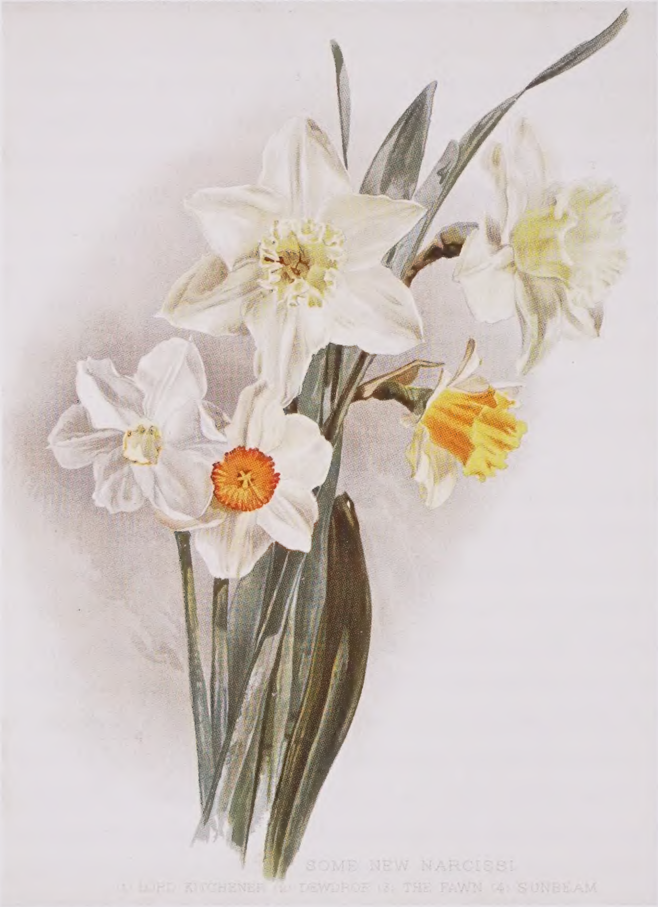
The Victorian passion for the ornate manifested itself in the practice of bedding-out, raising tender plants in the greenhouse from seeds or cuttings and then planting them in beds for colourful seasonal display. One of the many new plants being introduced from South and Central America and Africa which flowered profusely and triggered this approach was verbena, and this was followed by geraniums (pelargoniums), calceolarias,



CIRCULATING WAKEFIELD D. LIBRARY

lobelias and alyssum. It is still not uncommon to see vivid beds of red geraniums alternating with white alyssum and blue lobelia in gardens today. Sometimes the early bloomers were replaced with a second set of plants in mid to late summer. At gardens such as Trentham Park in Staffordshire one hundred thousand plants a year were used in the elaborate summer bedding displays. For those who did not have the room or facilities to grow their own plants the nurseries soon stepped in by producing large quantities of bedding plants from about the 1860s. A subsequent refinement of bedding-out was carpet bedding – planting low growing highly coloured foliage plants clipped to create elaborate designs such as the royal coat of arms. This demanding and labour-intensive horticultural work was particularly evident in public parks, and remnants of the practice persist in such examples as the floral clock maintained by the Niagara Parks department near Niagara Falls.

It was inevitable that there would be a reaction to such excess and it came with a passion from the Irish gardener William Robinson (1838–1935). Trained in the conventional manner as a gardener on the estate of Ballykilcavan, he famously quit his post in a rage, and is said to have turned off the heat in the greenhouses as he left. However, he must have had some credibility as a gardener because he headed to London in 1861 and worked at the Royal Botanic Society's garden in Regent's Park, where he was in charge of the herbaceous plant collection which included native British plants. Throughout his life he championed the use of hardy flowers that could be grown in the open rather than the tender greenhouse plants used so extensively by the Victorians. In 1866 he resigned his post and thereafter devoted himself to horticultural writing, travelling to the


SOME NEW NARCISSI
(1) LORD KITCHENER (2) DEWDROP (3) THE FAWN (4) SUNBEAM

Continent and producing seven books in the four years following his return. One of these was *The Wild Garden* in which he proposed the use of hardy plants from both Britain and other temperate parts of the world, placing them in appropriate situations throughout the grounds, rather than in formal beds and borders. He argued that individual plants look and perform better as part of natural groupings of other plants with diverse foliage and flower. After flowering each can fade discretely into the background, letting another take the stage as the season progresses. One of the practices for which he is best known was to naturalize spring bulbs in orchards and meadows, and he notes in his book about the making of his own garden, *Gravetye Manor or Twenty Years of the Work Round an Old Manor House* that in 1904–1905 he 'planted over 50,000 narcissus, of various sorts in the pasture, woods and orchard'.

Robinson purchased the estate and Elizabethan manor house of Gravetye in Sussex in 1884 and one of the first things he did was to demolish the existing greenhouses. He turned instead to plants that could survive English winters without protection, especially the new hardy ornamental trees and shrubs that were being introduced from China, such as rhododendrons and magnolias. The work for which he is best known, and which was hugely influential for at least the next half century was *The English Flower Garden*, first published in 1883. His overall philosophy still prevails today – to place plants under conditions where they will naturally thrive, and to mix native and exotic plants needing similar conditions to produce an informal ever-changing display.

36 William Robinson. *The English Flower Garden*. London: John Murray, 1883.
This work went into fifteen editions in Robinson's lifetime. It includes introductory chapters on a variety of topics followed by an alphabetical directory of plants suitable for growing in the open air. By the tenth edition in 1906 the introductory chapters had grown from seventeen to thirty-five and many illustrations of contemporary gardens were included. In the introduction he sums up his approach to flower gardening: 'I hope to prove that the true way to happiest design is not to have any stereotyped style for all flower gardens, but that the best kind of garden grows out of the situation as the primrose grows out of a cool bank'. Chapter thirteen, 'Spring, autumn and fragrant flowers' is by Robinson's friend and fellow gardener Gertrude Jekyll (1843–1932), as is part of chapter sixteen on 'colour in the flower garden', a theme which Jekyll had often written about and which was to find full expression in her own highly influential book of the same title, *Colour in the Flower Garden*, published in 1908.

Robinson and Jekyll in turn influenced several generations of British and international gardeners who created spectacular herbaceous borders. Daisy Lloyd, mother of Christopher Lloyd, received a copy of *The English Flower Garden* as a wedding present and it was a much used and consulted volume at Great Dixter. Christopher Lloyd actually met Jekyll when he was taken to Munstead Wood as a child, and he himself went on to become one of the most renowned gardeners and garden writers of the twentieth century. The English herbaceous border was emulated around the world well into the twentieth century, evolving into the mixed border as shrubs and trees were added to supplement the herbaceous plantings.

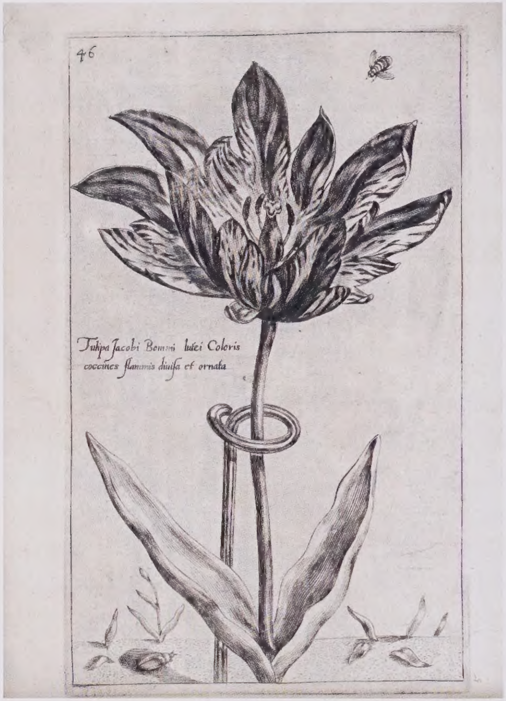
37 Isabella Preston. *Herbaceous Perennials with Lists of Varieties for Special Purposes and Districts*. Ottawa: Department of Agriculture, 1929.
This pamphlet is one of a series of bulletins published by the Department of Agriculture. The introductory section on the perennial border begins with a personal statement by Isabella Preston whose chief interest lay in flowering plants and shrubs. Her job title was 'specialist in Ornamental Gardening', and she opens with a personal statement about the pleasures of gardening with herbaceous perennials:

> There are fascinations about a perennial border that are not found in other forms of gardening, and the chief of these is watching for and greeting with delight last year's treasures as they spring up one by one after the snow and frost are gone.

There are sections on propagation, planting, staking, and insect pests and diseases, followed by a forty-page list of the best species and varieties, specialized lists of plants for shade and dry conditions, and further lists of perennials recommended for various parts of the country, based on trials at the regional farms.

Preston's work on perennials was later revised by R.W. Oliver who was senior horticulturist in ornamentals for the Horticulture Division of the Department of Agriculture in Ottawa for fifteen years. His revision was first issued in 1952, and continued to be reprinted in various formats throughout the 1970s, until it too was replaced in 1983 with a revision by Trevor Cole, under the title *Perennials in Your Garden*.

In addition to general works on both annual and perennial flowers there is a huge literature devoted to the cultivation of individual species. Tulips have long been highly coveted, and were the most desirable and fashionable of flowers in European gardens during the first half of the seventeenth century. The 'tulipmania' in Holland between 1634–1637 when bulbs traded at astronomical prices is well known, and it was preceded by a similar craze in France about twenty years earlier. The varieties depicted by contemporary artist Crispijn de Passe (ca. 1590–1670) reflected the passion for 'broken' tulips, meaning blooms which are bi-coloured – for example delicately feathered and flamed in rose red on a white base. The reason for these breaks, when a plain single-coloured variety spontaneously changes into a mixture of colours, was not understood until the cause (a virus carried by aphids) was finally identified in the 1920s. De Passe's work was used as a marketing and advertising tool, because tulips were sold as dormant bulbs and the buyer needed an indication of how the plant would look in bloom. It was essential to distinguish between an increasingly large number of varieties, and tulip names were long and descriptive.


46
Tulipa Jacobi Bommi lutei Coloris
coccines flammis diuiſa et ornata

38 Crispijn van de Passe. Plate depicting tulips, detached from the 'Spring' sequence of *Hortus floridus*. Arnhem: Janson, [ca. 1614].
In this plate the tulip is named for a Haarlem grower, Jacob Bom, and is shown supported by a type of plant stake still in common use today.

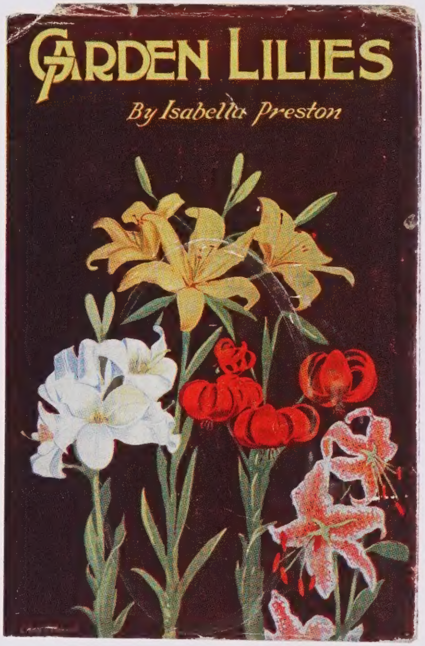
Thousands of books have been written on roses alone, and there are specialist publications available on everything from auriculas to yuccas.

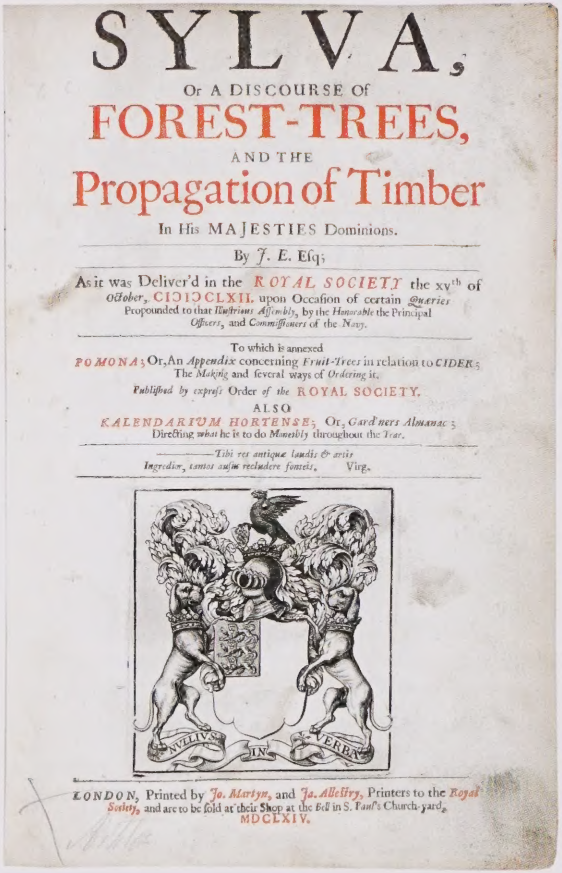
39 Roscoe A. Fillmore. *Roses for Canadian Gardens*. Toronto: Ryerson Press, 1959.
Aimed at the home gardener, Fillmore covers all aspects of cultivation, and includes articles by experts on roses in British Columbia, the Prairies and Ontario, as well as descriptions of Canadian roses developed by breeders including Dr. Frank Skinner of Dropmore, Manitoba, and Percy Wright of Saskatoon, Saskatchewan.

40 Isabella Preston. *Garden Lilies*. New York: Orange Judd Publishing, 1929.
Isabella Preston was already well known as a lily breeder by the time she joined the staff of the Ottawa farm in 1920. Her research on lilies continued throughout her life, even after her retirement from the Central Experimental Farm.

Ornamental trees and shrubs

Shrubs and trees are defined as perennial plants which have rigid woody parts that persist from year to year and season to season. Many of our most cherished flowers including roses, rhododendrons, lilacs and magnolias are classed as shrubs, and garden trees are valued for their flowers, leaf shape and colour, fruit and bark as well as their overall form. Trees and shrubs contribute structure to the garden, supplying both vertical and horizontal elements that define the space. There is a vast literature on the subject, but the earliest works were those dealing with forest rather than ornamental trees. Evelyn's landmark book, *Sylva; or, A Discourse of Forest-Trees, and the Propagation of Timber in His Majesties Dominions* was highly influential for more than a century, with four editions published in his lifetime, followed by a new illustrated edition with notes by Alexander Hunter (1729–1809) in 1776.





SYLVA,
Or A DISCOURSE Of
FOREST-TREES,
AND THE
Propagation of Timber
In His MAJESTIES Dominions.
By *J. E.* Eſq;
As it was Deliver'd in the *ROYAL SOCIETY* the xvth of
October, CIƆIƆCLXII. upon Occaſion of certain *Quæries*
Propounded to that *Illuſtrious Aſſembly*, by the *Honorable* the Principal
Officers, and *Commiſſioners* of the *Navy*.
To which is annexed
POMONA; Or, An *Appendix* concerning *Fruit-Trees* in relation to *CIDER*;
The *Making* and ſeveral ways of *Ordering* it.
Publiſhed by expreſs Order *of the* ROYAL SOCIETY.
ALSO
KALENDARIUM HORTENSE; Or, *Gard'ners Almanac*;
Directing *what* he is to do *Monethly* throughout the *Year*.
———*Tibi res antiquæ laudis & artis*
Ingredior, tantos auſus recludere fonteis. Virg.

LONDON, Printed by *Jo. Martyn*, and *Ja. Alleſtry*, Printers to the *Royal Society*, and are to be ſold at their Shop at the *Bell* in S. *Paul's* Church-yard,
MDCLXIV.

41 John Evelyn. *Sylva, or, A Discourse of Forest-Trees.* London: J. Martyn and J. Allestry, 1664.

Commissioned by the Royal Society, this work was written to promote the planting of forest trees following the devastation of the Civil War. Evelyn successfully made the economic argument that landowners should plant and professionally manage tracts of forests on their estates.

It was not economic imperative alone that drove the trend to large-scale tree planting at the end of the seventeenth century and beginning of the eighteenth century. The grounds of many country estates were being remodelled in the French formal style by the landscaping team of George London (ca. 1640–1713) and Henry Wise (1653–1738). This style included clipped trees and shrubs making use of hornbeam, yew, holly and box for ornamental effect, and vast numbers of trees such as limes, elms, and chestnuts planted to line both sides of the long, straight avenues radiating outwards from the house. Trees were planted in enormous numbers, supplied by the burgeoning nursery trade, especially the Brompton Park nursery firm founded by London, Moses Cook (d. 1715) and two other partners in 1681. Cook, gardener to the Earl of Essex, was well known to Evelyn, and is often credited as being the source for the practical horticultural detail in Evelyn's works. In 1676 Cook issued his own work on trees, giving detailed practical advice on all aspects of both planting and design.

42 Moses Cook. *The Manner of Raising, Ordering, and Improving Forest and Fruit-Trees.* Second edition. London: P. Parker, 1679.

Cook begins by debunking some myths about tree cultivation,

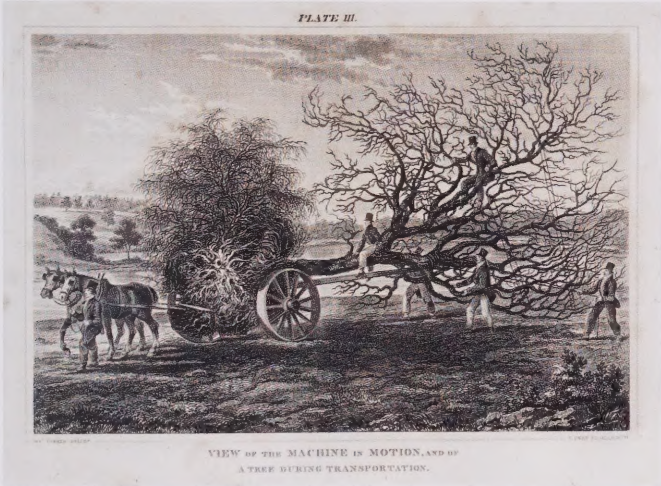


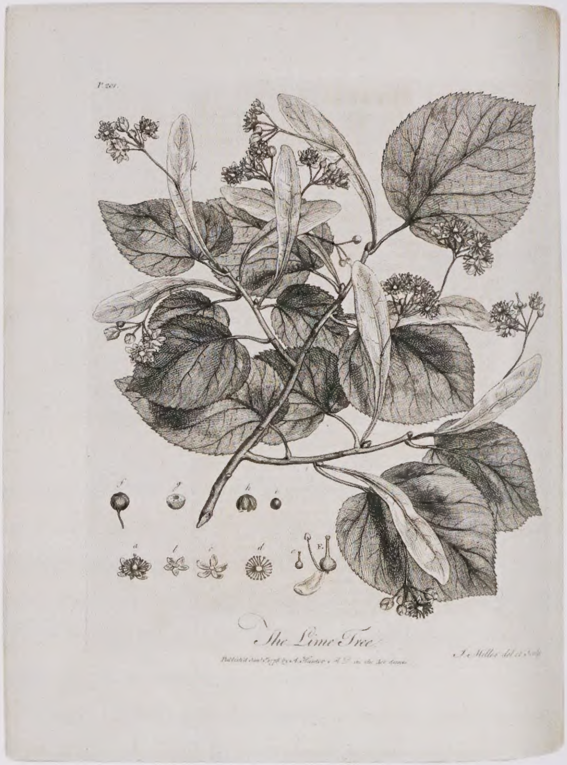
PLATE III.
VIEW OF THE MACHINE IN MOTION, AND OF A TREE DURING TRANSPORTATION.

such as that watering the seeds with coloured water will cause them to produce coloured flowers, or that boring a hole in a tree and filling it with honey will make the tree bear sweeter fruit. He then goes on to describe a number of individual trees and their uses and cultivation. In the chapter on the 'Line-tree' (*Tilia platyphyllos*, lime tree, also referred to as linden or basswood), he praises it as a fine tree for walks and avenues, and refers to three walks using lime trees he had recently created at Cassiobury for the Earl of Essex. The lime tree had been cultivated in Britain before 1400, but a new form of lime with smaller leaves (*Tilia x europaea*) was being grown and disseminated by Dutch nurseries at this time, and Cook praises the fragrance of the flowers and says that the lime trees 'in the cities of Holland adde much to the health of the inhabitants'.

The need for extensive afforestation throughout Britain continued into the eighteenth century as the population increased and timber was needed for the navy, for building and for fuel. The Society for the Encouragement of Arts, Manufactures and Commerce began to offer prizes for the planting of certain types of timber trees, including oak, Scotch fir, Spanish chestnut and elm. The Society's campaign resulted in some fifty million trees being planted from the period 1758 to about 1835. Works on tree planting continued to be published in large numbers, especially during the half-century from 1750–1800, and one of the most useful was *A Treatise on Forest-Trees* published by the author William Boutcher in Edinburgh in 1775. As a nurseryman with extensive experience growing trees, he warns that the market for trees has led to 'various imposters' in the nursery trade setting up in business and supplying 'crowded, half-suffocated' plants at cheap prices, undercutting reputable nurseries such as his.

By the early eighteenth century the reaction to the rigid formality of the French-influenced style of gardening with its *parterres*, long radiating avenues lined with trees, and straight-edged canals found its voice in a desire for simplification and a more natural approach to landscaping. The landscape movement, creating green parkland with belts, clumps and groves of trees, and sinuous rather than straight bodies of water, resulted over the course of the eighteenth century in a revolution in the appearance of British gardens. Trees provided the idiom of this movement, linking the man-made garden with its surrounding countryside. Enormous numbers of trees were both planted and transplanted to create the effect of a mature landscape. Landscape designer Lancelot 'Capability' Brown (1716–1783) devised a machine that literally wrenched the tree out of the soil, allowing him to transplant trees over thirty feet tall.

An important contributing factor to the fashion for such planting was the introduction of many new and attractive North American species of trees and shrubs. During the period from the 1720s to the outbreak of the Revolutionary War in 1775, there was an enormous influx of woody species from North America, carried back to England by the tobacco fleets sailing out of Virginia. Many of these specimens were collected by John Bartram (1699–1777) of Pennsylvania and consigned to London merchant Peter Collinson (1694–1768) for sale to British collectors. In one of his letters Collinson writes to Bartram concerning tree planting at Thorndon Hall in Essex. The enthusiastic plantsman Lord Petre (1713–1742) in a two year period beginning in 1740 is said to have planted more than sixty thousand trees, including about ten thousand 'American' trees such as black walnuts, tulip trees, honey locusts, flowering maples and Carolina oaks. By the 1770s when Hunter's edition of *Sylva* appeared there was a need for updated information on many species, and Hunter's notes sometimes take up more space on the page than Evelyn's original text.


The Lime Tree
J. Miller del. et Sculp.

43 John Evelyn. *Silva, or, A Discourse of Forest-Trees; with notes by A. Hunter*. York: A. Ward, 1776.
Alexander Hunter was a Scottish physician and writer whose aim in producing a new edition of Evelyn's influential work was to give further stimulus to the vogue for tree planting. It includes a section contributed by his friend William Speechly, known for the woods and plantations he created at Welbeck for the third Duke of Portland. Many of the plates are by the botanical artist and engraver John Miller (1715-c.1790).

In the nineteenth century John Loudon, who had previously published the massive *Encyclopaedia of Gardening* decided to compile a survey of all the trees grown in the British Isles, both native and foreign. The result was the monumental work, *Arboretum et fruticetum Britannicum*, published in 1838. Loudon wanted to include illustrations and the cost of employing seven artists across the country to draw all the trees from life left him in serious debt, from which he never recovered before his death from overwork a few years later. It was first issued in eight volumes (four volumes of text and four of illustrations), but a one-volume abridged edition was also published. Comprehensive reference works such as this are of great importance to both amateur and professional gardeners. The tradition has continued in such contemporary examples as *Manual of Woody Landscape Plants* by the University of Georgia's Michael A. Dirr, first published in 1975. Re-issued in multiple editions since then, it is now also available as an iphone app.

In Canada, as was the case with other aspects of home gardening, it was the government which sponsored the publication of some of the earliest and most useful works on ornamental trees and shrubs for Canadian conditions.
44 Lawrence C. Sherk and Arthur R. Buckley. *Ornamental Shrubs for Canada*. Ottawa: Research Branch, Canada Department of Agriculture, 1968.
This book begins with advice on all aspects of the selection and care of shrubs for garden use, and includes pruning diagrams and a discussion of pests and diseases. This is followed by lists of shrubs with particular attributes, such as fragrance or colourful fruit, twigs or foliage, shrubs suitable for particular locations such as acid soil, moist soil, shade or city conditions, and finally lists by growth habit and size from ground cover to those that attain fifteen feet or more in height. The main part of the book is organized alphabetically under the botanical name of the shrub, describing the various species and cultivars available to Canadian gardeners, with notes on hardiness. The entry for lilacs (*Syringa*) gives general cultural notes, and includes about a dozen species, including the Preston Lilacs (*Syringa* x *prestoniae*), described as 'a very beautiful late-flowering race of lilacs'. These lilacs were bred at the Central Experimental Farm in Ottawa, by Isabella Preston to whom the book is dedicated.

Section Two : Looking at Plants

> For his health of mind, it is absolutely essential that every gardener should uproot himself from his own patch, now and again, to go and see how other people are doing it, what their problems and interests are, how they approach the subject of gardening and with what result.
>
> Christopher Lloyd. "Recharging your batteries" in *In My Garden*, edited by Frank Ronan London: Bloomsbury, 1993. The article was first published in *Country Life* 11 August 1966.

> One of the most delightful things about gardening is the freemasonry it gives with other gardeners, and the interest and pleasure all gardeners get by visiting other people's gardens. We all have a lot to learn and in every new garden there is a chance of finding inspiration – new flowers, different arrangement or fresh treatment of old subjects.
>
> Margery Fish. *We Made a Garden*. London: Collingridge, 1956.

Plants in Many Habitats

(CASES FIVE TO SEVEN)

While we can learn a great deal about the nature and care of plants from the written word, reading can never take the place of seeing the living plants for ourselves, both in their native habitats and in garden settings. Christopher Lloyd who gardened at Great Dixter from boyhood, took time throughout his life to observe plants in the wild, and to visit gardens wherever he travelled. He was taken to Munstead Wood and introduced to Gertrude Jekyll as a child, and he and his mother were frequent visitors to Vita Sackville-West (1892–1962) at nearby Sissinghurst. Lloyd accompanied Anna Pavord to Turkey to study species tulips while she was researching her book on the subject, and he was always on the lookout for wild plants wherever he travelled.

Native plants

Field botanising has a long tradition and some of the earliest accounts we have of British gardeners seeking out and studying their own native plants are the two published accounts of Thomas Johnson, *Iter plantarum investigationis* in 1629 and *Descriptio itineris plantarum* in 1632. He and his apothecary friends went into what was then countryside in Kent and Hampstead, studying wild plants, chiefly with a view to their medicinal and other useful properties.

Explorers and emigrants to Canada encountered unfamiliar plants, learning from first nations people their many uses for food, medicine, and dyes, and introducing some to their gardens. The first Canadian flora, or written description of native plants, is Cornut's *Canadensium plantarum* of 1635. Jacques Philippe Cornut (1606–1651) was a Parisian physician who never visited Canada himself but obtained plants from an extensive network of gardeners and nurserymen. He was also able to study North American plants in the *Jardin du Roi*, many of which had been sent back to France by missionaries. Jesuit priests were particularly important agents in New France because they were encouraged by the state to gather native species, to grow them in test beds, and then to send plants and seeds back to France for further study.

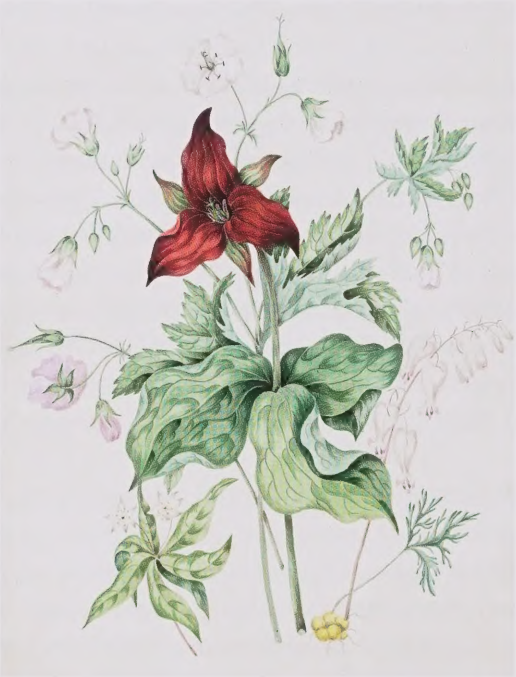
45 Jacques Philippe Cornut. *Canadensium plantarum.*
Paris: Simon Le Moyne, 1635.

46 Philip Miller. *Figures of the Most Beautiful, Useful and Uncommon Plants Described in the Gardeners Dictionary.*
London: P. Miller, 1755–1757.
Over thirty species from eastern North America are described by Cornut for the first time, a number of which still retain the names assigned by Cornut, ending in ‘canadensis’. The book is open to the plate depicting our native columbine ‘aquilegia pumila praecox canadensis’. Before Linnaeus standardized the nomenclature in 1753 the Latin names of plants tended to get longer and longer, in an effort to assign a descriptive name that would distinguish one plant from another similar plant, as more and more new plants were introduced and described. Over a century after Cornut’s work was published, Philip Miller, who grew *Aquilegia canadensis* in the Chelsea Physic garden, also described and illustrated the plant, citing Cornut as the source for the name in the plate’s title.

As the population grew and life became less difficult, people began to take both a scientific and an aesthetic interest in the native flora and to describe and document them through drawing and painting. Native-born Maria Morris Miller (1810–1875) specialized in watercolour paintings of Nova Scotia flowers and established herself as the first professional woman artist in the region, exhibiting her work in Halifax. She arranged to publish her paintings as hand-coloured lithographs through a London bookseller in 1840. The volume on display contains two of the four series of botanical illustrations by Morris, and a further three series followed in the next two decades.

47 Maria Morris Miller. *Wild Flowers of Nova Scotia.*
London: John Snow, 1840–1853.
The brief scientific descriptions for six of the plates were provided by Titus Smith the first Secretary of Agriculture for Nova Scotia. On display is plate one, depicting Nova Scotia’s floral emblem the mayflower, *Epigaea repens*, also known as Trailing arbutus.

One of Canada’s most remarkable amateur botanists was Catherine Parr Traill (1802–1899) who appreciated the beauty of the wild plants and flowers she encountered in her new home in southern Ontario, publishing descriptions of them in the four editions of *Canadian Wild Flowers* issued between 1868 and 1895, and in *Studies of Plant Life in Canada* in 1885, both illustrated by her niece Agnes Fitzgibbon Chamberlin (1833–1913).



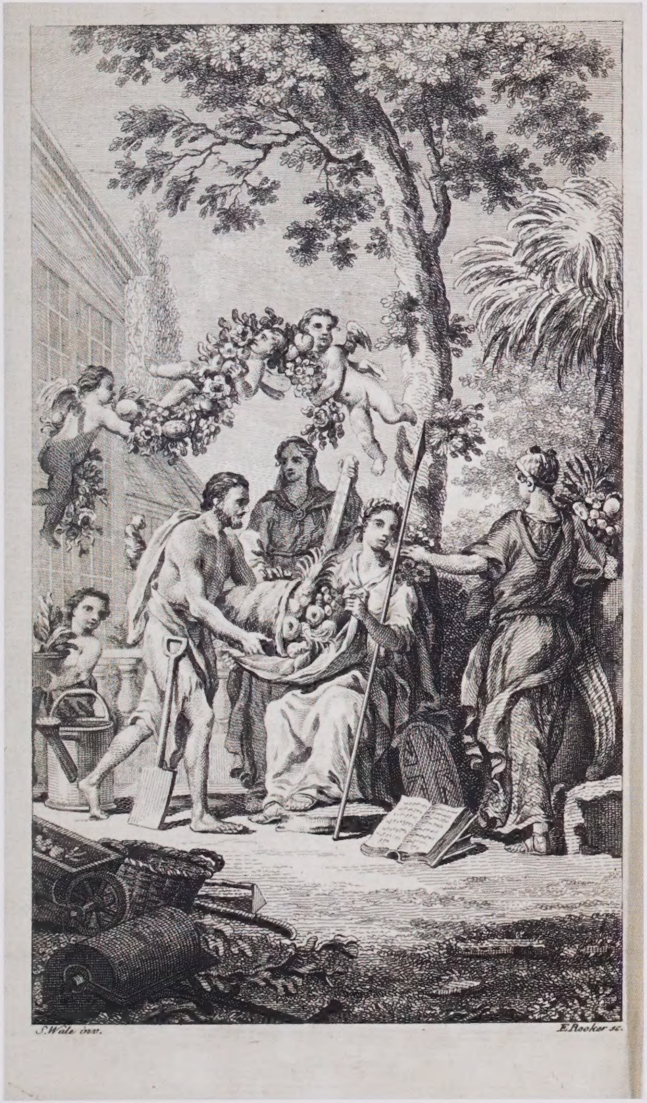
48 Agnes Chamberlin. Two original watercolour sketches, ca. 1860s.
Chamberlin produced many lovely watercolour sketches of individual plants, such as this one of the birthroot or red trillium, here correctly identified with its Linnaean name (indicated by the capital letter L. in brackets) *Trillium erectum*. When preparing the ten full-page illustrations for her aunt's *Canadian Wild Flowers*, Chamberlin grouped several plants on each plate, in order to make a more decorative effect, and to show more types of plants.

With the exception of Quebec, whose floral emblem at the time was the long-cultivated Madonna lily, the other provinces and territories all had a wild flower as their floral emblem in 1967. As part of the celebrations during Canada's centennial year, these floral emblems were coaxed into bloom in late summer by Lawrence Sherk, horticulturist in the Research Branch of the Central Experimental Farm in Ottawa, and placed on display to the public at the Canadian National Exhibition in Toronto.

49 Lawrence C. Sherk. *Growing Canada's Floral Emblems.* Ottawa: Dept. of Agriculture, 1967.
The pamphlet describes and illustrates each flower, and gives precise instructions for propagating and growing them in garden conditions. The booklet is open to show Alberta's emblem, the wild rose (*Rosa acicularis)*, which grows in large parts of the country from British Columbia east to Quebec.

Plant introductions

Globalization in the plant world has been the result of travellers encountering plants previously unknown to them, and bringing them back home to cultivate locally. It is known that Queen Hatsepshut transported frankincense trees (*Boswellia sacra*) from Somalia to her temple at Deir el-Bahri, Egypt around 1500 B.C. as these are shown in a mural being carried with their roots in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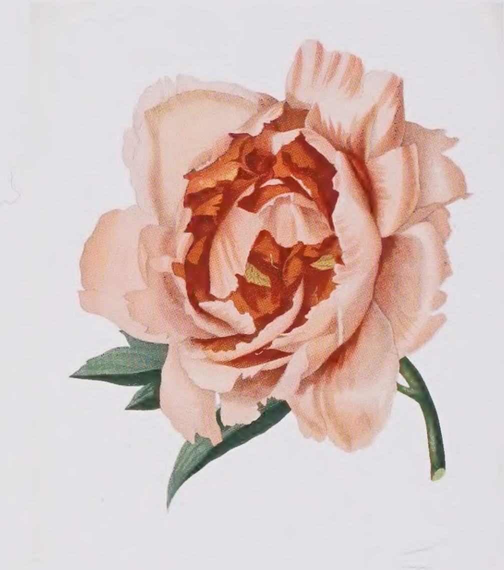
baskets, very like our balled and burlapped nursery stock of today. Plant hunting and plant introductions have continued without interruption to the present day. During the time of Alexander the Great the Greeks introduced lemon and peach trees from Persia, and the Romans imported the plane tree (*Platanus orientalis*) from Greece. Three centuries of Roman rule and culture brought to Britain such plants as the opium poppy, sweet cherries, and probably the grape vine. By the mid-sixteenth century there were some fifty species of foreign plants in Britain, including rosemary (introduced in 1338 and discussed in the preface), the sycamore tree, hops, and particularly new fruit trees such as the apricot, introduced in 1542. Over one hundred acres of orchards were planted in Kent around 1533 by the King's Fruiterer, Richard Harris.

By the end of the sixteenth century plants were arriving from central America as a result of Spanish exploration, including such mainstays of today's garden as sunflowers, marigolds and nasturtiums, as well as the tomato and potato. At this time too there was a wave of introductions of flowering bulbs, especially tulips, which made their way to northern Europe from Turkey and the near east. In the seventeenth century plants began to arrive from north-eastern America, and this continued into the next century, with a great number of new flowering trees and shrubs such as magnolias. One of the most important sources for American plants was John Bartram of

Pennsylvania who shipped plants and seeds on a subscription system to the Quaker merchant Peter Collinson in London. Collinson then distributed them to a network of subscribers in Britain, including such eminent gardeners as James Gordon (who was head gardener to the 8th Lord Petre at Thorndon), Philip Miller, William Hanbury, and the Dukes of Richmond, Norfolk and Bedford. By the end of the eighteenth century there was an influx of flowering garden plants both from South Africa and from China, including hydrangeas, peonies and chrysanthemums. In the nineteenth century plants continued to pour into Britain from all parts of the world. The introduction of many new trees and plants from the Pacific coast of North America, particularly of conifers such as the Douglas fir, was followed by new arrivals from South America, China and Japan.

The first generations of plant collectors and explorers tended to concentrate on the search for useful plants, with obvious commercial potential. However, the Horticultural Society of London had a network of correspondents around the globe, as well as employing their own plant collectors, whose mandate was to locate and send back garden-worthy plants. John Reeves (1774–1856), an employee of the East India Company stationed in Canton sent many plants from China beginning in 1817, including azaleas, camellias, chrysanthemums and moutan or tree peonies. In 1843 following the Treaty of Nanking which ended the war with China, Robert Fortune (1813–1880) was sponsored by the Horticultural Society to secure new hardy ornamental plants. Fortune was responsible for introducing many beautiful garden plants from China, which were subsequently described and illustrated in the botanical and horticultural periodicals of the day.



50 John Lindley and Joseph Paxton. *Paxton's Flower Garden*. London: Cassell, Petter, Galpin, 1882.
In his account of his trip, *Three Years' Wanderings in the Northern Provinces of China*, Fortune recounts his search for new varieties of the tree peony or moutan, and describes the

beauty of the flowers he saw growing in a nursery around Shanghai, including those in unusual colours such as dark purple and deep red. Two of the tree peonies which Fortune sent back to the Horticultural Society in 1846 are illustrated in a later reprint of *Paxton's Flower Garden*: 'The Salmon-Coloured Moutan', and 'The Deep Blood-Coloured Moutan', which is described as 'the finest of the moutans introduced by the Horticultural Society'.

Botanical gardens

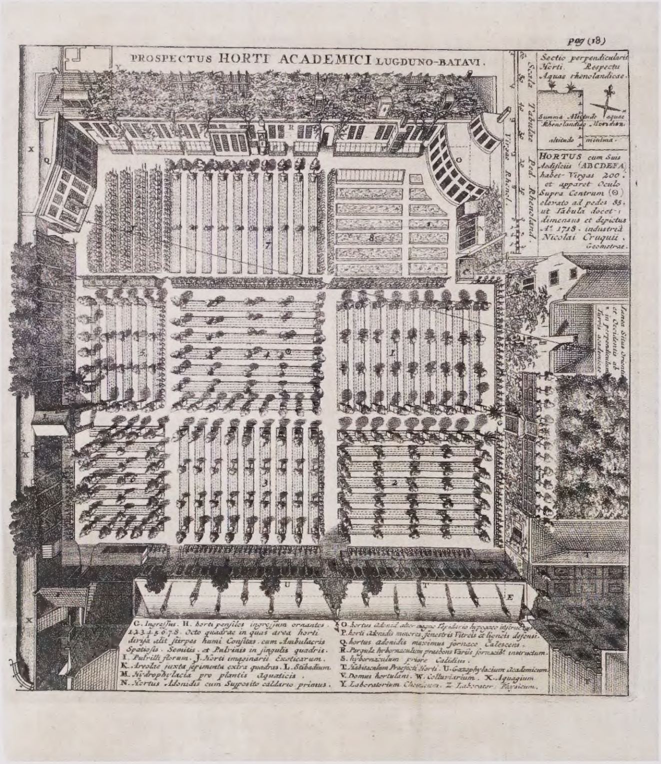
The most structured way of observing plants is in a botanical garden where similar plants are grown and displayed together, often arranged by plant families, and labelled for easy reference. Botanical gardens provide the public with a venue to study both native and introduced garden plants, to see them growing in actual garden or natural settings, and to study a particular genus in detail. The great age of plant discovery that began in the sixteenth century with the exploration of the Americas triggered an interest in the scientific study and classification of plants. The plants and seeds which made their way to Europe were cultivated with a view to determining their potential uses. At first this was chiefly to ascertain their medical properties, and the great botanical gardens founded in the sixteenth century at Padua, Leiden and Montpellier were attached to medical schools, giving students the opportunity for detailed examination of living plants.

The Hortus Botanicus in the Dutch town of Leiden was established soon after the founding of the university in 1575. The first prefect of the garden was the distinguished Charles de l'Ecluse (1526–1609) or Clusius, who had a wide network of correspondents across Europe and had written extensively on botanical subjects. In 1593 he brought with him from Frankfurt a great number of seeds, bulbs and plants to form the foundation of the garden, which had about one thousand plants when it first opened. Other distinguished botanists associated with the garden were Herman Boerhaave (1668–1738) and Johannes Fredericus Gronovius (1686–1762), an early patron of Linnaeus. Boerhaave produced two catalogues of the plants in the garden, the first in 1710 and the second, with many more plants, in 1727.

51 Herman Boerhaave. *Index alter plantarum quae in horto academico Lugduno-Batavo aluntur*. Leiden: J. Vander Aa, 1727.

The plan of the Leiden garden shows that the plants were arranged as individual specimens displayed in a series of rectangular beds grouped according to families. This method facilitated study since plants were grown alongside others to which they were closely related.

The Oxford Botanic Garden was founded in 1623 by Henry Danvers, later the 1st Earl of Danby (1573–1643), but was not planted until at least a decade later. Danby had arranged to appoint the great London-based


pag (18)
PROSPECTUS HORTI ACADEMICI LUGDUNO-BATAVI.
Sectio perpendicularis Horti Respectu Aquas rhenolandicae.
Summa Altitudo aquae Rhenolandicae Meridian.
altitudo minima.
Scala Tabulae Virgas Ped. Rhenoland. Rhenol.
HORTUS cum Suis Aedificiis (ABCDEFA) habet Virgas 200. et apparet Oculo Supra Centrum (⊙) elevato ad pedes 85. ut Tabula docet; dimensus et depictus Aº 1718. industria Nicolai Cruquii. Geometrae.
G. Ingressus. H. horti pensiles ingressum ornantes.
1.2.3.4.5.6.7.8. Octo quadrae in quas area horti divisa alit stirpes humi Consitas. cum Ambulacris Spatiosis. Semitis. et Pulvinis in singulis quadris.
I. Pulvilli florum. J. Horti imaginarii Exoticarum.
K. Areolae juxta sepimenta extra quadras. L. Stibadium.
M. Hydrophylacia pro plantis Aquaticis.
N. Hortus Adonidis cum Supposito caldario primus.
P. horti Adonidis minores fenestris Vitreis et ligneis defensi.
Q. hortus adonidis maximus fornace Calescens.
R. Parvula hybernaculum praebens Variis fornacib. instructum.
S. hybernaculum priore Calidius.
T. Habitaculum Praefecti Horti. U. Gazophylacium Academicum.
V. Domus hortulani. W. Colluvitarium. X. Aquagium
Y. Laboratorium Chemicum. Z. Laborator. Physicum.

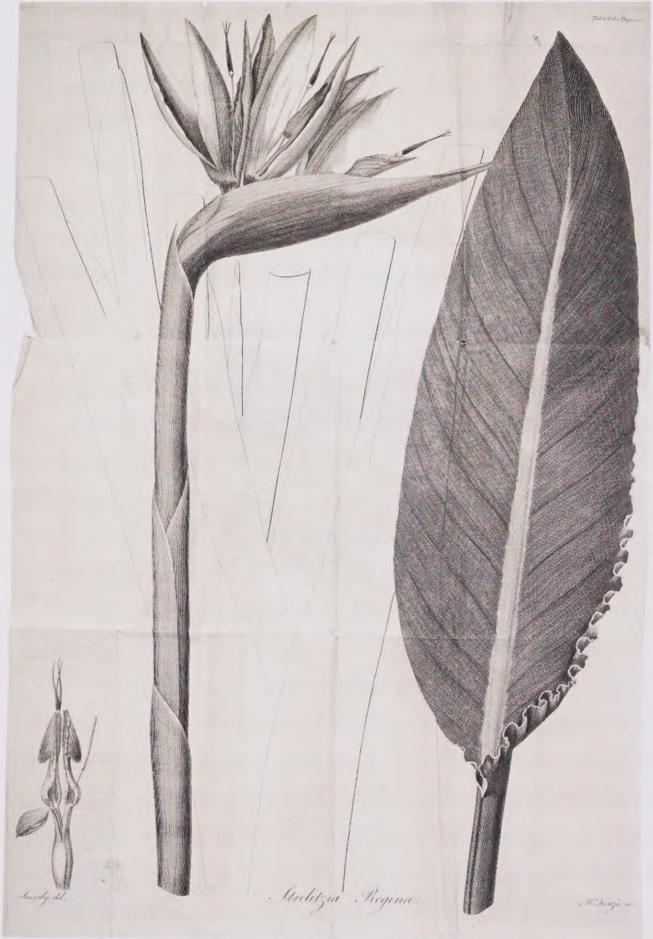
52 David Loggan. *Oxonia illustrata*. Oxford: Sheldonian, 1675.
The painter and engraver David Loggan (1635–1700?) produced the illustrations for this volume of plates depicting the buildings of Oxford in birds-eye views, and he also included the botanic garden. It shows the stylized layout of the garden, divided into four symmetrical quarters, which represented the continents of Europe, Asia, Africa and the Americas. The inset in the top right corner shows the 'Conservatory for evergreens', meaning the building used to shelter tender plants such as orange trees over the winter. Early greenhouses such as these were sometimes heated but did not have the sophisticated climate control or glass walls and roofs found in later designs.

gardener and plant collector John Tradescant the elder as the first gardener, and there is evidence that Tradescant may have been briefly involved in the planting before he died. Danby then appointed the German botanist Jacob Bobart (1599–1680) as gardener, who was succeeded by his son, also named Jacob Bobart (1641–1719). The first catalogue, listing some 1400 plants growing in the garden, was published in 1648.

In England the Chelsea Physic Garden, founded by the Society of Apothecaries in 1673, came to prominence under the expert care of Philip Miller and remained the premier garden in the country during much of Miller's lifetime. Sir Hans Sloane had granted the Society a perpetual lease on the Chelsea property, and one of the conditions was that each year fifty new plants were to be described and donated to the Royal Society as dried specimens. This required the continuous introduction of new plants and ensured that Chelsea was at the forefront of knowledge about their cultivation. Miller was a highly skilled horticulturist and many plants were first successfully grown by him, including exotic species requiring special conditions, as well as hardy foreign garden-worthy plants and rare species of indigenous plants.

Miller was at the centre of a vast network of plant enthusiasts and distributed plants and seeds to other gardeners throughout Britain and Europe.

As the renown of Chelsea was fading in the latter part of the eighteenth century the great gardens at Kew were growing in importance under the leadership of Sir Joseph Banks and head gardener William Aiton (1731–1793) who had trained under Philip Miller at Chelsea. Aiton produced the first printed catalogue of the gardens at Kew, listing some 5600 species. Just over two decades later, the second edition of the catalogue by his son William Townsend Aiton (1766–1849) listed over 11,000 species. In the nineteenth century the gardens were taken over by the state and flourished under the directorship of Sir William Hooker and his son Sir Joseph Dalton Hooker. Kew was, and is, renowned for its collections of plants from all over the globe. The orangery, one of the garden buildings commissioned by the Princess Augusta in 1757 to house tender citrus plants, was joined in the nineteenth century by the Palm House and Temperate House, and in the twentieth century by the Princess of Wales Conservatory.


Sowerby del.
Strelitzia Reginae.
M. Kenzie sc.

53 William Aiton. *Hortus Kewensis, or, A Catalogue of the Plants Cultivated in the Royal Botanic Garden at Kew.*
London: George Nicol, 1789.
Aiton's three-volume catalogue of the plant collections at Kew is arranged according to the Linnaean classification, based on the sexual characteristics of plants. Aiton includes in each plant description the name of the person by whom it was first introduced into England. The catalogue is not illustrated throughout but does include a few large plates of outstanding

new flowering plants. Shown here from volume one is the spectacular Bird of Paradise flower (*Strelitzia reginae*), which was introduced into Britain in 1773 by Joseph Banks from South Africa and first grown at Kew. The third volume includes a plate of *Limodorum tankervillia* (now named *Phaius tankervilliae* and listed as an endangered species), the first tropical orchid to flower at Kew. It was introduced to England from China in 1778 by physician and plant collector John Fothergill (1712–1780).

54 Philip Henry Gosse. *Wanderings Through the Conservatories at Kew*. London: Society for Promoting Christian Knowledge, 1856.

Philip Henry Gosse (1810–1888) popularized the study of natural history and wrote prolifically on marine life, birds and related subjects. Kew is an important tourist destination today as it was in Gosse's day, attracting a million visitors a year by the end of Victoria's reign. Gosse recommended Kew as a sort of open laboratory, where ordinary people had the opportunity to view living plants from around the world. He describes the highlights of each of the greenhouses, including the enormous Palm House. Gosse commends the accuracy of the illustrations, which were prepared from 'daguerreotypes' taken on the spot. The book is open to a description of a Victorian favourite – the Monkey-Puzzle tree (*Araucaria imbricata* now *Araucaria araucana*). First introduced by Archibald Menzies in 1795, it did not become common in cultivation until it was reintroduced by William Lobb (1809–1864) in 1844.

Britain established botanical gardens in virtually all of her colonies with the exception of Canada. Consequently, Canadian botanical gardens were relatively late on the scene, founded by individuals with little or no government or institutional support, and most have gone through times of organizational and financial difficulty. The University of British Columbia botanic garden was established by provincial botanist John Davidson (1878–1970) in 1916 and flourished into the 1930s, but many of the original collections were lost when the gardens moved to their present site in 1968. It is now notable for its collection of rhododendrons and for its alpine and Japanese gardens. After a number of previous attempts to establish a botanical garden in Montreal had failed to produce results, *Le Jardin botanique de Montréal* was founded by the renowned Quebec botanist Brother Marie-Victorin (1885–1944) in 1931. He was able to get help in the original design from Henry Teuscher (1891–1984), a German horticulturist and landscape architect working at the New York Botanical Garden who was eventually hired in 1937 as the first garden director. There are now over thirty thematic gardens, including an outstanding collection of roses. The North American reference collection of species roses is maintained there as well as an extensive collection of Canadian-bred roses, some of which were developed on-site by staff. The establishment of a botanical garden near Hamilton, Ontario had been discussed since the 1920s. A royal charter was granted in 1932 and the rock garden, which was the first part of the garden to be laid out, was open to the public that year. Both it and some of the original gardens at the *Jardin botanique* in Montreal were created with labour supplied by government sponsored work projects during the depression. The Royal Botanical Garden holds the world reference collection of lilacs. In addition to themed gardens the site includes large tracts which are maintained as nature preserves, including marshland.

55 Allen Paterson and G. Brender à Brandis. *To Catch the Light: Images of Royal Botanical Gardens, Hamilton, Ontario, Canada.* Stratford: G. Brender à Brandis, 1992.
In 1941 the Royal Botanical Gardens was formally created a provincial institution by Act of Parliament and this book was published to mark the semi-centenary. Issued in a limited editon of 55 copies, it contains wood engravings of individual plants, both native and foreign, as well as views of several different areas of the garden. The book is open at the illustration of the rock garden, which was created in the 1930s and was the earliest part of the garden to be open to the public.

Botanical gardens continue to be founded in Canada, and two of the latest are the Memorial University of Newfoundland Botanical Garden, and Toronto Botanical Garden, each with its own special focus and mandate. The Newfoundland garden, located in St. John's in a challenging climate on poor soil, was initiated in 1971 and first opened to the public in 1977. Newfoundland's flora consists of an unusual mixture of plants with varied origins and the gardens have been developed to display native plants as well as cultivated plants that can adapt to local conditions.

The most recent to be founded in Canada is the Toronto Botanical Garden. It has its roots in the Civic Garden Centre, a project of the Garden Club of Toronto, which functioned as a centre for horticultural activity in the city from 1958. The Civic Garden Centre shared a site with Edwards Gardens, originally a private garden that was sold in 1955 to the city of Toronto. In 2006, as the culmination of years of planning, the Civic Garden Centre was revitalized and reborn as Toronto Botanical Garden, with a new building and a series of seventeen contemporary-themed gardens. The gardens are on a small, four-acre site, and the focus is on organic, urban-scaled, ornamental and demonstration gardens as well as on edible gardening. The Entry Garden Walk was designed by acclaimed Dutch garden designer Piet Oudolf, working with Martin Wade Landscape Architects of Toronto, and is Oudolf's first project in Canada. Oudolf, who is one of the founders of the 'New Wave' planting movement, recently designed the plantings for the acclaimed High Line garden in New York City, as well as many other notable gardens throughout the United States and Europe, including two stunning 147 metre long perennial borders at Wisley in 2001.

56 *Piet Oudolf's Planting of the Entry Garden Walk at the Toronto Botanical Garden*. Toronto: Garden Club of Toronto, 2007.
The complex planting plan incorporates perennials, grasses, shrubs and trees carefully selected for their architectural form, texture, autumn colour and winter silhouette. Some of these, for example *Stachys officinalis* 'Hummelo', are vigorous cultivars that have been tested at Oudolf's own nursery farm in The Netherlands. The gardens continue to evolve – the photographs by Paul Zammit, Director of Horticulture, depict the entry garden at various times in the year.

Demonstration gardens

There are many other types of gardens, not strictly botanical in intent, but perhaps more aptly named demonstration or horticultural gardens, where plants are trialed, or which specialize in single families or species of plants grown for garden purposes. In the United Kingdom there is a formalized arrangement, the Plant Heritage National Plant Collection scheme, whereby some public and private gardens take on the responsibility to document, develop and preserve a comprehensive collection of one group of cultivated plants in trust for the future. The establishment of designated reference collections of plants open to the public creates a rich resource for home and professional gardeners by gathering together all the species and cultivars within particular genera or defined groups. There are now more than 650 such collections, eleven devoted specifically to different types of hostas alone. For example the national collection of Hemer-ocallis Spider and Unusual Forms is held by the proprietor of a specialist nursery, the national collection of Alchemilla is held at the Cambridge University Botanic Garden, while the national collection of over thirty named varieties of Mulberry are held on the Royal Estate in the gardens at Buckingham Palace, Kensington Palace and Marlborough House.

In England the Horticultural Society of London (later the Royal Horticultural Society) set up demonstration gardens soon after its founding, beginning in 1818 with a small walled garden in Kensington and then in 1821 with thirty-three acres of leased land at Chiswick. The Chiswick garden was enriched by the success of the Society's plant collectors and became home to many new plants from China and the Americas. The Wisley garden in Surrey was added in 1904, and has one of the largest and most diverse plant collections in the world, with around thirty thousand taxa represented. Plant trials were an important function from the first, beginning with extensive trials of vegetables at Chiswick, including a remarkable 435 samples of lettuce and 260 of peas, but also large plantings of peonies, phloxes and irises and, as early as 1823, a collection of over 1,200 roses. Part of the impetus for these was to stabilize the nomenclature, as plants were being sold under a huge number of synonymous names. Plant trials continue to be very important at the Wisley site, enabling the public to see and compare different cultivars of ornamental plants each year. The entries are professionally judged, with those most garden worthy granted the designation Award of Garden Merit (AGM), a distinction which is respected world wide. There are now three other RHS gardens – Harlow Carr in Yorkshire, Hyde Hall in Essex and Rosemoor in Devon.

57 *Transactions of the Horticultural Society of London.* London: 1812–1842. Vol. 1.

As early as 1826 the Society had issued a catalogue of fruit grown at their Chiswick gardens, listing 3,825 cultivars. In 1883 the National Apple Congress held at Chiswick included 10,140 exhibits with an astounding 1,545 distinct cultivars on display. Many examples of new and improved varieties of fruit are depicted in the first series of the Society's *Transactions*. These were elaborate publications, with full-page hand-coloured plates. The Spring Grove Codlin, developed by Thomas Andrew Knight, is described by Banks as an early apple, ripening in July, but with the flavour of the best winter apples. The plate is by William Jackson Hooker.

In Canada, an unusual opportunity to view plants was afforded by the system of experimental farms set up by the federal government beginning in 1886. The initial impetus for this was to improve agricultural techniques and production by providing practical advice to established farmers and new immigrants. Extensive trials and breeding programs were set up, culminating in globally important breakthroughs such as the development of Marquis wheat by Charles Saunders (1867–1937), son of the founding Farm Director William Saunders (1836–1914). The largest farm, known as the Central Experimental Farm, was developed in the outskirts of Ottawa, and there were four regional farms covering the rest of the country. In Ottawa a horticultural division was established under the leadership of W.T. Macoun (1869–1933), whose mandate was to develop strains of plants that could withstand the Canadian climate. An early focus was on hardy fruit-bearing trees and shrubs, but many ornamental plants were also bred and trialed there, particularly by British-born horticulturist Isabella Preston. Among the introductions for which she is still known is a whole series of hybrid flowering crab apples, known as Rosybloom crab apples, each named for a Canadian lake. Her work on crossing lilacs resulted in a new group of hardy late-blooming lilacs still referred to as 'Preston Lilacs', or 'Canadian Lilacs' (*Syringa x prestoniae).*

The Ottawa farm was open to visitors, and hosted social and horticultural events such as Strawberry teas and the annual Chrysanthemum show, which ran from 1912 until 1994. Reports and bulletins on the breeding programs and plant trials were also regularly published, to make the results of the research widely known to the general public. Many of the bulletins on ornamental horticulture, such as the two on display here, could be obtained free of charge from the Department of Agriculture.

58 W.T. Macoun. *Hedges and their Uses with Notes on Trees and Shrubs Tested for Hedge Purposes at The Central Experimental Farm, Ottawa and Lists of Best Hedges at the Branch Experimental Stations*. Ottawa: Department of Agriculture, 1931.

This pamphlet provides a concise but comprehensive coverage of hedges, their uses and care, for all parts of the country. The collection of hedges was begun in 1889, and by 1931 at the time of publication, 136 species and varieties of trees and shrubs had been tested at the Ottawa location and others throughout the country, 'giving inspiration to plant hedges, and guidance as to what to plant, to the many visitors visiting these Stations'. The sample hedges were generally fifty feet long, and included both deciduous and evergreen trees and shrubs.

Many horticultural groups, commercial nurseries and seed merchants, and trade organizations such as Landscape Ontario run annual plant trials, testing both new introductions and older varieties. Veseys, advertised as being the largest mail order seed company in Canada, has five acres under production for field trials every year in Prince Edward Island. The company's founder, Arthur Vesey, began the seed trials to research varieties of vegetables that would grow quickly with good results in short seasons. Landscape Ontario is running an ongoing multi-year trial of *Echinacea* and *Heuchera*, both vegetatively and seed propagated, as well as annual trials of other ornamental plants which are open to the public one day each year. They also sponsor research into best horticultural practices. Landscape Ontario also participates in international trials such as those testing All-America Selections (AAS), which are flowers, vegetables and herbs tested at independent judging sites in the United States and Canada for hardiness, yield, disease and pest resistance.

Another type of garden available to the Canadian public in the nineteenth and twentieth century with an overtly educational aim was the railroad garden, established by the railway companies, particularly the Canadian Pacific Railway (CPR). Gardens along the railway rights-of-way as well as near depots, stations and company-owned housing were common in Britain, and there is evidence that railway gardening was taking place in Canada by the 1860s and was prevalent in eastern Canada by the 1880s. In the west, the impetus for them was chiefly to encourage settlement, as flourishing gardens visible along the rail-way line were an effective advertisement for soil fertility.

In 1884, as part of a broad promotional strategy to attract new settlers, the CPR established demonstration farms in both Manitoba and Alberta. The farms encompassed mixed farming and horticulture and they also included hothouses which produced flowers for the station dining rooms and the company's hotels. The productivity of the farms was widely publicized as an inducement to attract farmers from both Europe and the United States to the newly opened territories in western Canada. In 1908 the CPR set up a Forestry Branch and began both to grow and distribute plants, encouraging the establishment of gardens throughout western Canada, and setting an example by planting trees and shrubs as windbreaks along railway rights of way and in the area around their stations and hotels.

Many railway employees who had emigrated from Europe would have been familiar with station gardens from their own experience, and were ready to take advantage of the resources offered by the railroad companies. Annual prizes were awarded for the best gardens, and the station gardens were admired and emulated. The station master often became the main source of horticultural advice in smaller communities along the railway. The gardens varied in size from small beds around the station to larger areas of several acres. They were meant to be viewed from the station platform or passing trains and, like all gardens everywhere, displayed individual creativity while also reflecting the prevalent style of the day. The layout tended to be quite formal, and bedding plants in bright colours predominated right into the 1950s. With the advent of the automobile, passenger train travel declined, stations were closed, and station gardens, other than those professionally maintained, disappeared.

Public parks

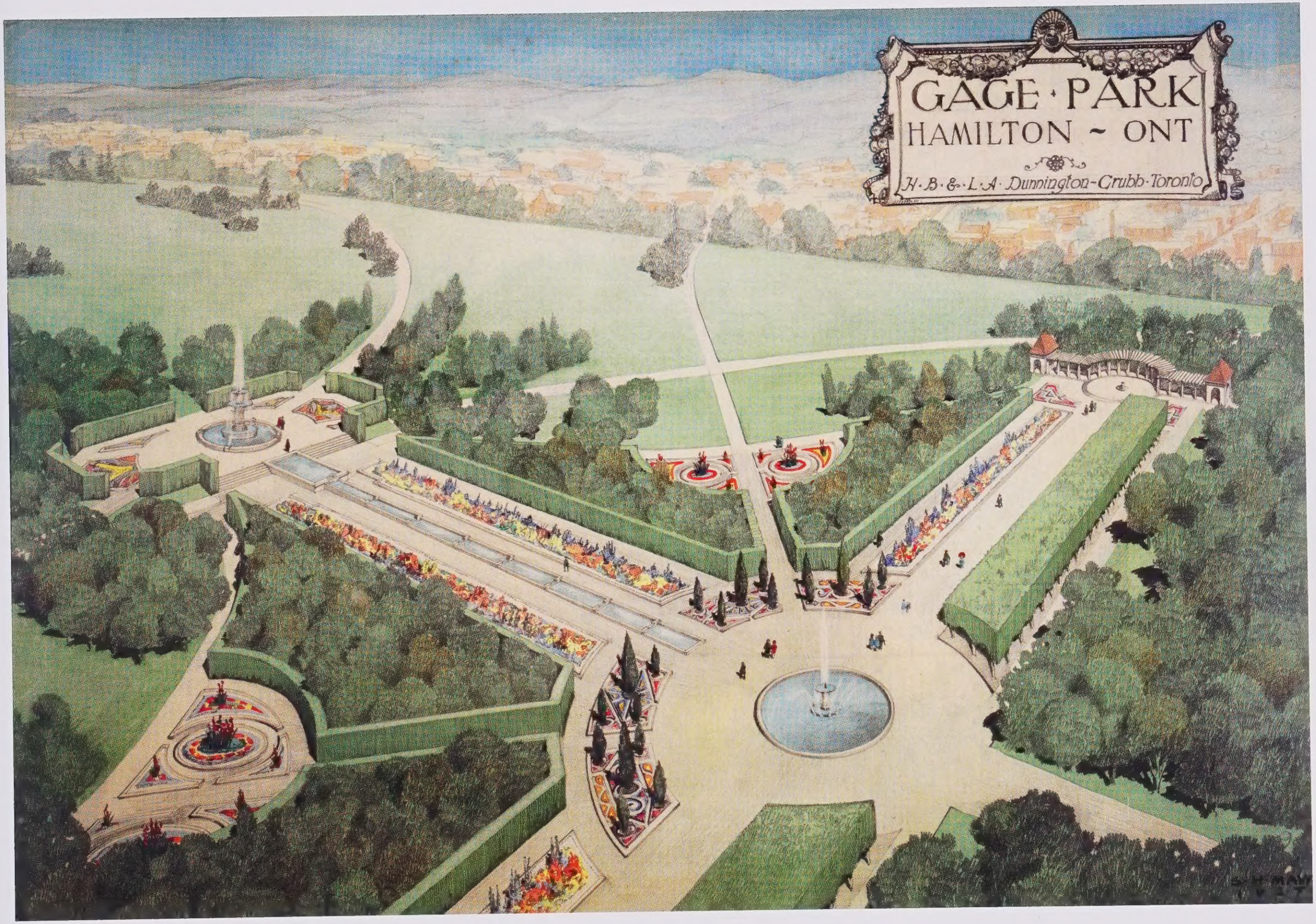
The park open to the general public for recreational purposes grew out of nineteenth century populist and democratic values, and the notion of the moral or transformative power of the natural world. It is interesting to see some of these same ideas being discussed today, albeit with a slightly different slant. In 2010, over one thousand participants from thirty-seven nations attended the International 'Healthy Parks Healthy People' Congress in Melbourne, Australia, which explored the ways in which parks significantly contribute to our health and well-being. The public health role of natural settings is being scrutinized in scientific studies, such as that of Marc Berman at the University of Michigan in 2008, who studied the differences in brain function in students who took a two mile walk in an arboretum, compared to those who walked the same distance on a busy city street. People who had walked through nature were not only in a better mood, but also scored significantly higher on attention and working memory tests.

One of the first parks to be financed with public funds, Birkenhead Park, was designed by Joseph Paxton beginning in 1843, and included plantings of trees, two lakes and a network of walking paths separated from the main drives. Manhattan's Central Park designed by Frederick Law Olmsted (1822–1903) is said to have been inspired by Olmsted's visit to Birkenhead in 1850. By the end of the century the movement had caught on and most industrial cities in Britain had a public park. The great urban parks of Canada such as Montreal's Mount Royal (also partly designed by Olmsted), High Park in Toronto, and Stanley Park in Vancouver stem from this same tradition. City parks provide a green haven within a densely populated area, and generally include many features other than plants, such as picnic areas, playing fields, playgrounds and other sports and recreational facilities for children and adults. However, many parks are of horticultural interest as they may include areas of professionally designed and maintained ornamental garden beds and floral displays, as well as an opportunity to view mature trees or rare or unusual trees and shrubs.

59 S. H. Maw. Water-colour design for Gage Park, Hamilton, 1927.
The City of Hamilton purchased sixty-four acres of the land which is now Gage Park from Robert Gage in 1917. The property was developed in the 1920s when formal gardens were laid out, and tennis courts, a greenhouse and lawn bowling facilities were added later. The park was famous for its rose garden, designed and laid out in 1924.
On loan from Sheridan Nurseries

Aside from these very large landscape style parks, many cities offer smaller garden-like parks open to the public. In 1857 George William Allan (1822–1901), who in 1855 had briefly been Toronto's eleventh Mayor, and was the long-serving President of the Toronto Horticultural Society, donated five acres of his Moss Park estate to the Horticultural Society. Allan had travelled extensively in Europe, and was involved in many of the city's cultural organizations. At the time there was not a single park or public space in the fast-growing city open to the general public for recreational use. Originally known as the Botanical Gardens, it was officially opened during an elaborate ceremony by the Prince of Wales, later Edward VII, in 1860. The Prince planted a maple tree, and Allan Gardens still contains lovely mature trees, including red oaks, sycamores and sugar maples, providing a shady green oasis in the downtown core. When Allan died in 1901 the gardens were renamed in his honour.

In 1878 Pavilion Hall was erected and in 1885 the grounds were laid out with lawns and flower beds. The Horticultural Society turned the property over to the city in 1888 on the understanding that it continue to be used for horticultural purposes and remain open to the general public. The real interest for gardeners today lies in the greenhouses, open year-round, with changing seasonal plant displays, from a wide range of spring bulbs to the fall show with some seventy-five varieties of chrysanthemums, to the Victorian Christmas show featuring dozens of different varieties of poinsettias. Allan Gardens now includes six greenhouses, erected over a period of years from 1910, when the original Palm House was opened, to 2004 when the greenhouses of the University of Toronto's Department Botany were moved to the site.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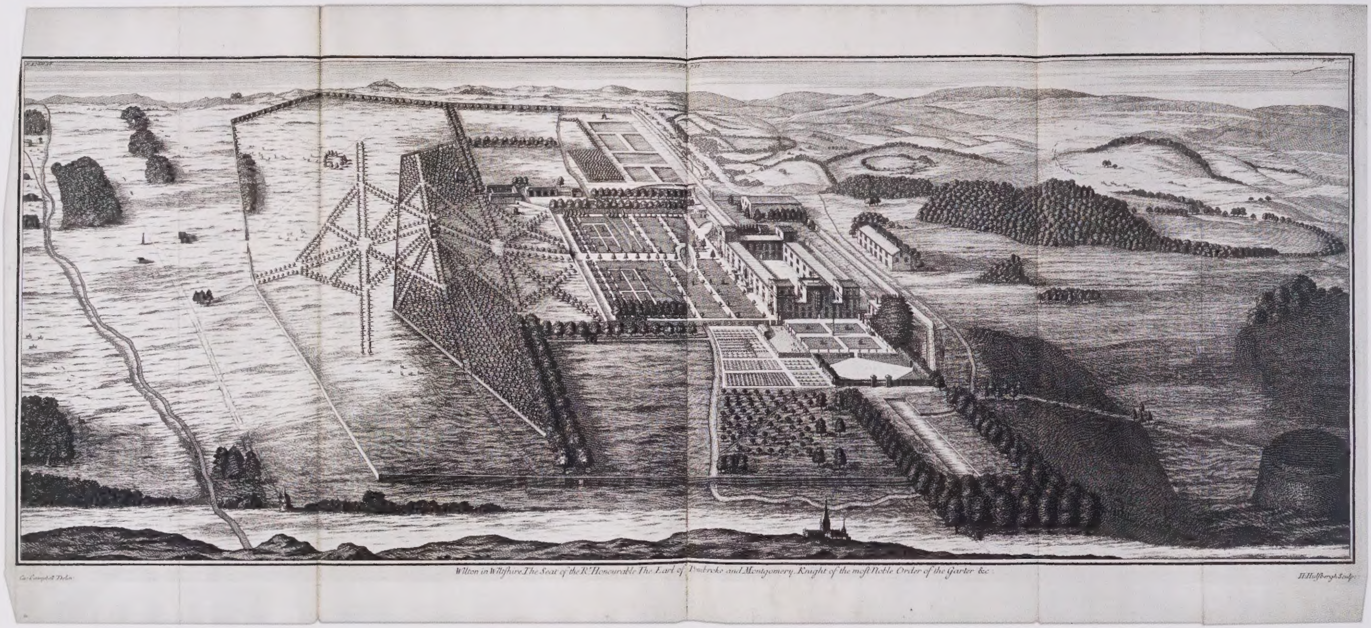
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Wilton in Wiltſhire The Seat of the Rt. Honourable The Earl of Pembroke and Montgomery, Knight of the moſt Noble Order of the Garter &c.
H. Hulſbergh Sculp.

60 *Fifty Glimpses of Toronto and Vicinity : From Recent Photographs.* Toronto: McLeod & Simpson, 1901.
The plate on display depicts the Pavilion and fountain at the Horticultural Gardens in Toronto.

Private gardens

Travellers have always commented on gardens as one of the features of the places being visited. During his extensive travels the poet and antiquary John Leland (c. 1503–1552) described minutely almost every corner of England, and commented on gardens long since lost. When visiting Wressle Castle in Yorkshire, built in the 1380s and 1390s, he noted that the gardens within the moat and the orchards outside were 'excedingly fair', and described the garden mount 'writhen about with Degrees like Turninges of Cockilshilles', with a view to the river Derwent below.

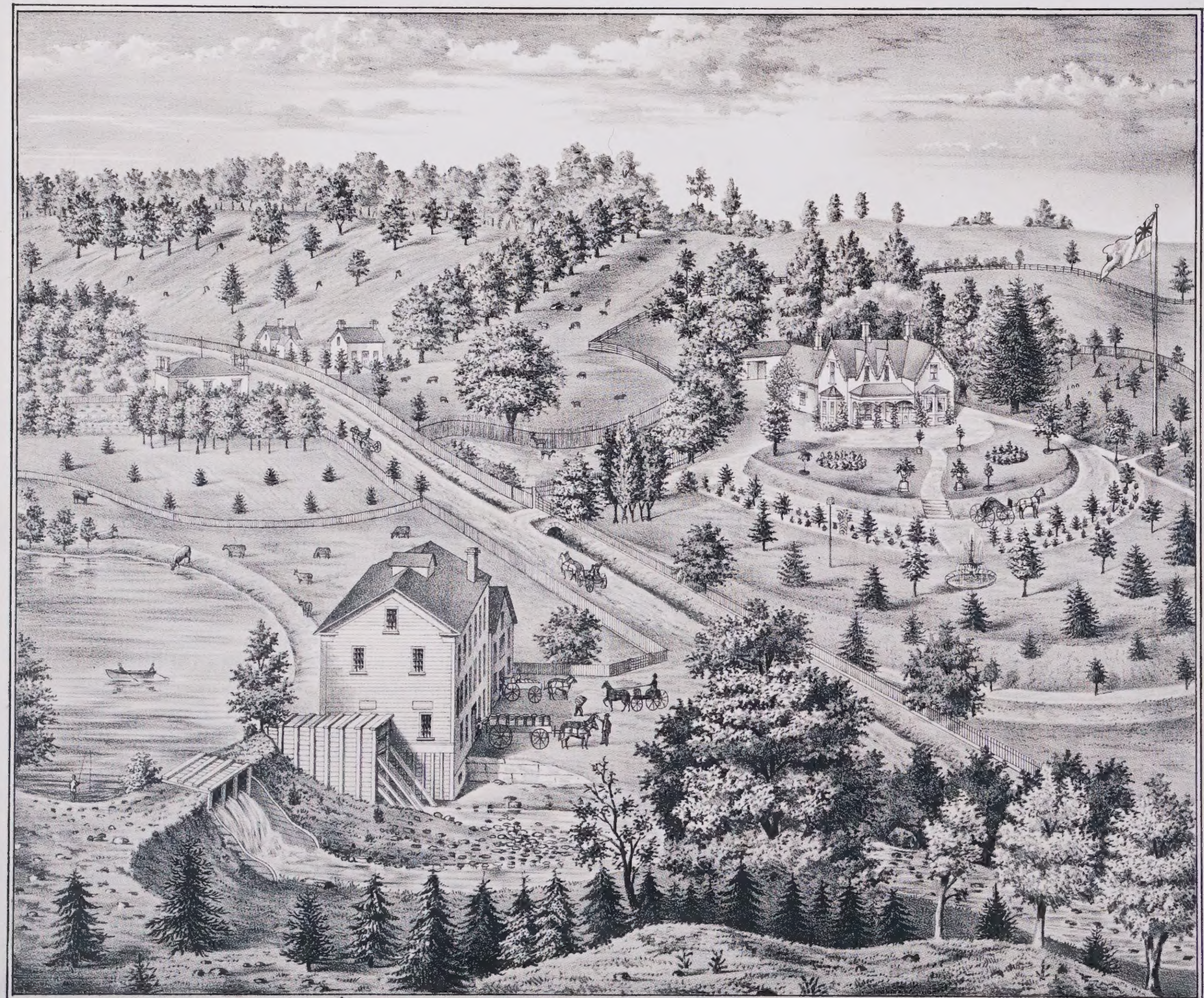
The ruined gardens of classical Rome were an inspiration to the garden-makers of the Italian Renaissance, and the Renaissance gardens in turn inspired the tourists of northern Europe making the rounds during the heyday of the Grand Tour in the eighteenth century. Richard Boyle, the 3rd Earl of Burlington (1694–1753) returned from his second tour in 1719 with the architect William Kent. They worked together to design a villa and gardens at Chiswick, inspired by places they had seen on their travels, such as Hadrian's Villa Adriana at Tivoli. The Chiswick property included a flower garden and orchard, but what we now call hardscaping - garden buildings, statues, columns and gateways - were the dominant features rather than the plants.

61 Robert Castell. *The Villas of the Ancients Illustrated.* London: Printed for the author, 1728.
This lavish folio volume by Robert Castell (d. 1729) includes texts and translations from Varro, Columella, Virgil and Pliny the younger. The Roman agricultural writers continued to be influential for their practical advice, and Virgil and Pliny were a source of inspiration for garden design, both in the Italian Renaissance and in early seventeenth century British gardens. Castell drew detailed plans of Pliny's villas and their surrounding gardens, at Laurentinum and at Tuscum, reconstructing them from the descriptions in Pliny's letters, but interpreting them through the sensibilities of his own time. The volume is dedicated to Burlington.

For those unable to visit in person, the formal English garden of the seventeenth century, with its geometric layout and radiating avenues, was beautifully captured in the series of detailed engraved views of English country houses and their surrounding gardens by the Dutch team of artist Leonard Knyff (1650–1721) and engraver Johannes Kip (1653–1722). Published as *Britannia Illustrata: or Views of Several of the Queens Palaces, as Also of the Principal seats of the Nobility and Gentry of Great Britain*, it was followed by many similar works depicting the grand new houses and grounds being built across Britain in the eighteenth century by a growing class of gentry and nobility, anxious to show off their wealth and taste.

62 Colin Campbell. *Vitruvius Britannicus; or, The British Architect.* London: Sold by the author, 1715–1725. 3 vols.
The third volume of this work by the architect Colin Campbell (d. 1729) includes illustrations of gardens and grounds, with formal layouts of *parterres* and straight vistas of radiating avenues through wooded plantations, in a manner that was soon to be superseded by the naturalistic style of the eighteenth century. The volume is open to show Wilton, in Wiltshire, which was such a popular attraction that in 1731 it was one of the first in England to issue a guidebook for visitors.

The illustrated volume depicting country estates was a publishing genre echoed in nineteenth century Canada in the form of some forty atlases with detailed maps of counties in the Maritimes, Ontario and Quebec. The atlases were sold by subscription and some of the subscribers paid a premium to have detailed views of their residences included, which often featured the surrounding gardens.



MILL, HOMESTEAD, MILLER'S COTTAGES & RESIDENCE OF G.B. SALTER ESQ. CANTON, CON. 4, LOT 12 HOPE TP., DURHAM CO., ONT.

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63 H. Belden & Co. *Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont.* Toronto: H. Belden, 1878.

This plate of the country residence of G.B.Salter in Hope Township, Durham County shows the house with quite sophisticated plantings of flower beds, a fountain and formal semicircular groupings of trees in the front, and more naturalised clumps of trees in the background.

64 Marjorie Harris. *The Canadian Gardener.* Toronto: Random House, 1990.

More than a century later the team of gardener and journalist Marjorie Harris (1937-) and photographer Tim Saunders travelled around the entire country photographing gardens and interviewing their owners. Harris, who had been a writer and radio producer, began to contribute gardening articles to *Toronto Life*, *Chatelaine* and major Canadian newspapers in the 1980s. Each garden was chosen as an outstanding example of an individual response to the challenges posed by the unique environment of that garden. The book includes colour photographs of dozens of gardens along with practical horticultural advice.

Daniel Defoe (1660?–1731) described many private gardens which he visited in the early 1720s in his *A Tour Thro' the Whole Island of Great Britain*. In his account of Wanstead House he praises the gardens, the greenhouse, and particularly the 'vast number of rows of trees, planted in curious order for avenues and vistas, all leading up to the spot of ground where the old house stood'. He then goes on to remark on the consequences of opening one's garden to the public: 'These gardens have been so much the admiration of the public, that it has been the general diversion of the citizens to go out to see them, till the crowds grew so great, that his Lordship was obliged to restrain the shewing them to particular and stated times'. This practice, of opening the garden to the public at designated times, often when the family was not in residence, began to be the norm. Some of the most popular sites began to publish guidebooks, as Defoe remarked, to 'assist the curious in their survey'.

In 1732 Gilbert West (1703–1756) had published a long poem praising the garden at Stowe, but the first true guidebook was *A Description of the Gardens of Lord Viscount Cobham, at Stow in Buckinghamshire* by Benton Seeley, published in 1744, with a third edition by 1746. Guidebooks to Stowe have continued to be published subsequently, in many different editions and formats.

65 George Bickham. *Stowe: A Description of the Magnificent House and Gardens of the Right Honourable Richard Grenville Temple, Earl Temple, Viscount and Baron Cobham.* London: Rivington, 1773.

The landscape gardens at Stowe, the country seat of the Dukes of Buckingham and Chandos, were created by Lord Cobham (1675–1749) beginning in the 1720s, but by the time this guidebook was published Cobham had died and the estate had passed to his nephew Richard Grenville (1711–1779). The garden had been carefully and lovingly developed by Cobham over three decades, and its evolution documents the changing aesthetic of the time towards a more natural approach to garden design and practice. Stowe is the only garden to which all three of the most influential designers of the time contributed (Bridgeman, Kent and Brown). Charles Bridgeman (d. 1738) began the trend away from French formalism and symmetry, introducing the ha-ha, or sunken fence at Stowe to blur the division between garden and landscape. He then collaborated with architect and landscape designer William Kent on the eastern part of the garden known as the Elysian Fields, making winding paths rather than avenues, and sinuous rivers rather than straight-edged canals, through unclipped groves of trees and shrubs. This trend culminated in the work of Lancelot 'Capability' Brown in the 1740s, who extended the garden to the north, sculpting a valley out of flat land, and planting full grown trees on an enormous scale. He also removed the old formal *parterre* and fountain from the south front of the house, replacing it with lawn. In this volume the description of the garden takes up the bulk of the work, with less than ten pages being devoted to the house.

In England and Wales the National Trust undertakes responsibility for the preservation of houses and gardens as well as significant tracts of land. Founded in 1895, the National Trust acquired its first important garden, Montacute, in 1937. Their work has made it possible for the public to see many other gardens that are among the most influential in the country, among them Stowe, Stourhead and Sissinghurst. In 1948 the Committee for the Preservation of Gardens of Outstanding Merit was established under the auspices of the Royal Horticultural Society and the National Trust, to make recommendations on the acquisition of gardens, with such luminaries as Lord Aberconway (RHS President 1931–1953) and Vita Sackville-West as founding members. That same year the garden created by Lawrence Johnston (1871–1958) at Hidcote Manor was the first to be accepted by the Trust solely on its own merit, apart from the house and surrounding estate. An essay on Hidcote by Vita Sackville-West published in *The Journal of the Royal Horticultural Society* in November 1949, describes Hidcote just at the time it first opened to the public. She praises Johnston for his 'combination of botanical knowledge and aesthetic taste' and describes the garden as 'a matured garden full of variety and beauty, the achievement of one man in his lifetime'. At that time Johnston had been creating the garden for over forty years. A plant hunter as well as skilled horticulturist, he was responsible for introducing many garden plants still commonly used today, including Hidcote lavender (*Lavandula angustifolia* 'Hidcote') and the fragrant climbing yellow rose named after him (*Rosa* 'Lawrence Johnston'). Vita's own garden at Sissinghurst Castle had been open to the public on specific days through the National Gardens scheme beginning in 1938, just eight years after it was first acquired. Sissinghurst came to the National Trust in 1967 in lieu of estate duty and remains one of the most visited gardens in Britain.

Garden visiting as an end in itself, with the focus on the garden rather than the house, gained impetus in Britain with the National Gardens Scheme (NGS), which provides a mechanism whereby hundreds of private gardens throughout Britain, from grand estates to smaller urban properties, are open to the public on specific days each year. There is a small entrance fee, originally set at one shilling, with the proceeds going to charity. Last year 3700 gardens were open to visitors throughout the season, generating some 2.5 million pounds for a wide range of charities. Over the years the NGS has provided the opportunity for enthusiastic garden lovers to visit outstanding private gardens which would not otherwise have been accessible. The opportunity to visit locales in our own neighbourhood is especially useful as it allows us to see gardens created by those faced with similar conditions and resources to our own, and thus particularly relevant to our own interests and concerns. Over time some of the NGS gardens began to sell plants, and became small specialist nurseries, thus serving a further need by making unusual plants more widely available. In order to publicize the gardens and to inform the public about which gardens were open when, the NGS began to publish an illustrated guidebook which was available for purchase. In 1949 the guide was first published in a yellow cover, which has remained constant to this day. Although originally entitled *The Gardens of England and Wales Open to the Public* it is now known simply as *The Yellow Book.*

In Canada although we do not have a national infrastructure enabling visits to private gardens there are many local initiatives, often organized by garden clubs or horticultural societies, which promote garden-visiting. Some cities have an organized Open Gardens network, in which gardens are promoted as being open for viewing on certain days during the summer season. There are many examples of gardens which began as private estates, such as Parkwood in Oshawa, Ontario, the Butchart Gardens near Victoria, British Columbia, or the Reford Gardens in Quebec, which are now open to the public, under the auspices of municipal or provincial organizations, or as private enterprises.

The Reford Gardens, also known as Jardins de Métis, were created beginning in 1926 by Elsie Reford (1872–1967) at her family fishing camp Estevan Lodge, at the confluence of the St. Lawrence and Mitis rivers in the Gaspé area of Quebec. The garden was home to one of the largest plant collections of its time, but was open to the public only once in her lifetime, during World War II, to raise money for the Queen's Fund for Air Raid Victims. Elsie Reford had inherited the estate from her uncle, Sir George Stephen, later 1st Baron Mount Stephen (1829–

1921), Montreal financier and first President of the Canadian Pacific Railway, and she in turn left it to her eldest son. She gardened there into her 80s, but as is so often the case, it was difficult to maintain the gardens into the next generation. With support from Montreal Botanical Garden horticulturist Henry Teuscher and others, the Quebec government acquired the gardens in 1961. It was opened to the public the following year and was a great success from the beginning, attracting some 100,000 visitors annually in the 1990s. The garden is renowned in particular for its collection of *meconopsis*, including the Himalayan blue poppy, which Elsie Reford introduced with great success. Since 1995 the gardens have been owned by a charitable organization, Les Amis des Jardins de Métis, but have, in a sense, come back to the family because Alexander Reford (Elsie's great grandson) became the Director of the gardens, responsible for their ongoing preservation and development. The year 2012 marks the fiftieth anniversary of the gardens opening to the public.

Flower and garden shows

Another very helpful learning opportunity is provided at garden and flower shows, where members of the public have the opportunity to see a great variety of plants, often with a focus on the newest or very best examples of a particular species, which are judged and awarded prizes according to strict criteria. The debate for and against such competitive garden shows continues to this day. The Victorian argument in favour of such shows was that the opportunity to see plants grown to perfection offered an incentive to others to strive harder. On the other hand, such shows are often criticized for their artificiality and exclusivity, and Victorian gardener and journalist William Robinson was the first of many to note in 1876 in his periodical *The Garden* that 'the real tests of the gardener's skill and taste are in the garden and not at the "Show"'. Nevertheless, their enduring popularity is a testament to their continued relevance, or perhaps just to the gardener's desire to see beautiful plants in all seasons. In Canada, the fragrance and colour of flowers at events such as Canada Blooms in Toronto, coming at the tail end of our long winter, is a welcome sight and a promise of the growing season to come.

The garden or flower show, as we know it today, is the culmination of a long and varied tradition going back to small, local societies which held organized meetings from the first half of the seventeenth century. The members of these early florists' societies were those skilled in the cultivation of flowering plants, not professionals specializing in the sale or display of cut flowers, as we use the term florist today. In the following century, the term 'florist' referred especially to those who tried to produce new varieties through careful selection and breeding. Florists' societies originally held their meetings at inns and public houses while sharing a meal, and these 'florists' feasts' evolved into competitions at which prizes were awarded. Such societies were generally devoted to growing a particular group of flowers, and these were originally restricted to the auricula, polyanthus, hyacinth, tulip, anemone and ranunculus, with the carnation and pink added towards the end of the eighteenth century. The flowers exhibited were those meant to be grown as individual specimens and admired at close quarters. There are records of florists' feasts in Norwich from 1631, and in London in the 1680s. The competitions eventually spread to all parts of Britain, remaining popular in some regions well into the twentieth century.

Auriculas belong to the primrose family, and the fragrant yellow primrose has long been known, but it was not until the early seventeenth century that the first coloured primroses were grown. One of these was described by Parkinson as 'Tradescant's Turkie Purple Primrose', and he further says that it 'doe seeme every one of them to bee a Nosegay alone of itself', because of its tendency to sport into innumerable varieties when raised from seed. It was probably because of its variability, and the possibility of developing beautiful new forms, that the auricula held top place in the florists' canon. William Hanbury, whose 1770 work *A Complete Body of Planting and Gardening*, includes an entire section 'Of Shed or Prize Flowers' described it as 'the pride of English Florists':

> So that while the Dutch are boasting of their grand tulips, hyacinths, &c. we may lay claim to a greater honour, in our improvement of these delightful plants; for the Auricula, if we regard its sweetness of odour as well as beauty, must claim the precedence, and stands in our gardens the glory of all flowers.

James Maddock (1763–1825), who ran a nursery near London, published *The Florist's Directory* in 1792, which is considered to be the first book specifically on florists' flowers. It gives detailed instructions on cultivation for each of the eight categories. His recommended planting medium for auriculas, for example, includes such specific elements as 1/24 part decayed willow wood and 1/24 part ashes of burnt vegetables. In the nineteenth century societies devoted to particular flowers, such as the National Auricula Society (established in 1873), were formed and there were immense numbers of cultivars available. The fashion in flowers changes, like everything else, and by the mid-twentieth century only one British firm still kept an extensive stock of auriculas. However Sacheverell Sitwell (1897–1988) praised them highly in his *Old Fashioned Flowers* in 1948 when he wrote: 'it is my belief that no one of sensibility, upon seeing for the first time a stand of Auriculas at a flower show, can fail to be deeply moved by this revelation of beauty'. In the last few decades there has been a revival of interest in these and other members of the primrose family, by specialist firms such as Woottens of Wenhaston in Suffolk who grow over five hundred varieties of auriculas.

66 James Maddock. *The Florist's Directory, a Treatise of the Culture of Flowers*. New Edition, improved with notes by Samuel Curtis. London: John Harding, 1822.
The cultivation of the 'show auricula' demanded special care and attention. The flower had to be protected from direct sunlight but also from rain, which would destroy the perfection of the bloom. This work includes a plate depicting two views of an auricula stage, the top view (fig. 1) showing the structure recommended as a 'winter repository', and the second (fig. 2) showing a stage or theatre used for display while the plants are in bloom. Sadly, although at one time such structures were common, very few have survived. The National Trust has preserved one of the oldest surviving auricula theatres at Calke Abbey in Derbyshire.

While many florists' and specialist flower societies remained active into the nineteenth century, a different sort of show had also started to gain popularity. In 1831 the Horticultural Society of London, named the Royal Horticultural Society (RHS) after 1861, began organizing competitions for plants requiring protected cultivation, such as dahlias, pineapples, melons, camellias and grapes. These shows obviously catered to a different demographic than the older florists' societies, whose members cultivated flowers that could be grown in ordinary garden conditions. Indeed Loudon specifically comments in the 1827 edition of his *Encyclopaedia of Gardening* that florists' flowers, including the auricula, tulip and pink are 'a poor man's flower, and a fine blow [bloom] is rarely to be seen in the gardens of the nobility and gentry,'

The Royal Botanical Society competed with the Horticultural Society by organizing their own shows at Regent's Park. Stimulation to large scale garden shows was also offered by a series of international exhibitions. A London show, the International Horticultural Exhibition and Botanical Congress, sponsored by the RHS in 1866 was followed by one in Paris the following year, and in Vienna in 1872. Beginning in 1888 the RHS held an annual show in the Temple gardens on the Embankment, which was the forerunner of the Chelsea show. The 1888 show was held in heavy rain, in two large tents, and included produce from Canada and Australia, as well as decorative plants such as palms, azaleas, orchids and tree peonies, on display by both amateur and professional growers. In 1912, with leadership from the RHS, another international exhibition, the Royal International Horticultural Exhibition, was held in the grounds of the Royal Hospital at Chelsea. The following year the RHS forsook the Temple gardens location, and held the first of the long series of shows in the more spacious grounds at the Royal Hospital, and the great Chelsea Flower Show was born. The show has remained in the same location since, with brief interruptions during the two world wars. The first show held after World War II was in 1947. Although it was much smaller than the 1939 show, because of reduced availability of ornamental nursery stock resulting from wartime priorities for food production, it was a great success and the shows have continued ever since. Chelsea remains a highlight of the gardening year in England, attracting over 150,000 visitors in person and some 2.2 million viewers in the U.K. alone through the televised coverage.

Flower and garden shows have also been important in Canada. One of the earliest of the large shows intended to draw a national and international audience was the 1938 National Flower and Garden Show, held at the Canadian National Exhibition in Toronto and widely publicized in the Canadian press. Sponsored by the Society of American Florists and Ornamental Horticulturists, it was the first to be held outside of the United States. A more recent example was *Les Floralies internationales de Montréal* held in 1980 in the former Expo 67 grounds at which twenty-two countries mounted exhibits showcasing their own flora through contemporary garden design. The world's largest international flower and gardening exposition is Floriade, held every ten years. This year marks its sixth anniversary, and it is taking place in Venlo in the Netherlands, from April to October 2012.

Many horticultural societies and garden clubs across the country hold spring or summer shows,with floral displays and sales, as well as competitions. These range from local events in small towns, such as Flowerama in Tweed, Ontario held on Canada Day, to extensive shows in large urban centres such as the British Columbia Flower and Garden Show, or *Le Rendez-vous horticole* (The Great Gardening Weekend) organized by the Friends of the Montreal Botanical Garden and the horticultural industry in Quebec. At many of these shows the public is able to view and purchase the most recent plant varieties being promoted by nurseries and specialist growers.

The Garden Club of Toronto, which first met in 1947, sponsored many flower shows almost from its inception. In 1997 they partnered with Landscape Ontario, then celebrating its twenty-fifth anniversary, to organize the first of the Canada Blooms shows. Held on the outskirts of the city at the Toronto Congress Centre the first year, it moved downtown in 1998 to the newly opened south building of the Toronto Convention Centre where it remained for the next twelve years. In its inaugural year it featured forty-eight gardens covering six acres, as well as floral arranging and plant competitions, demonstra-

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67 Arthur M. Kruse. "Pageant of the Flowers." *Canadian Homes and Gardens*. Vol. 15(5), May 1938.
Arthur Kruse was the designer and superintendent of installation for the show. With private and governmental support including from the Central Experimental Farm the show featured such unusual displays as a garden of native California plants, and lavish spring bulb displays including 20,000 bulbs donated by the Holland Bulb Exporters. Cash prizes of $25,000 were awarded and the show attracted some 130,000 visitors.

tions and a roster of Canadian and international speakers. The first year the show attracted more than 70,000 visitors, which had risen to 110,000 by 1998. It has continued under the same two major sponsors ever since, and in March 2012 teamed with the National Home Show, and was advertised as 'the single largest home and garden experience in North America'.

Local agricultural societies all across the country from the late eighteenth century onwards have organized annual fall or harvest fairs, which almost always feature competitions for the biggest and best flowers and vegetables. For example, the tiny hamlet of Walters Falls in the agricultural area of Grey County in Ontario held a fair with a published catalogue and list of prizes each year from 1889 until late in the twentieth century. The horticultural class in the 1889 catalogue consisted of thirteen categories and included both house plants and such individual classes as geraniums, fuchsias, begonias and petunias. By 1923 there were twenty-three categories in the horticultural class which now included pansies, asters, dahlias and gladiolus. Larger regional agricultural fairs, such as the Canadian National Exhibition (CNE), also featured horticultural displays.

The Special Role of Nurseries (CASE EIGHT)

> ... for I and others have seen plants that were to be sold in the markets that were as uncertain of growth as a piece of Noah's ark would be, had we it here to plant. But when such plants are bought at the gardens where they were raised, there can be no deceit, without the gardener who sold them loses his character.
> Thomas Fairchild. *The City Gardener*. London: T. Woodward and J. Peele, 1722.

While it would be difficult to over-estimate the importance of the nursery trade to both the practice of gardening and to the dissemination of horticultural knowledge, nurseries are not, of course, the only source of plants available to the gardener. Long before the existence of the commercial trade, plants and seeds were circulated informally among friends, neighbours and family members. The sharing of rosemary cuttings in 1338 between the countess of Hainault and her daughter Philippa, queen of Edward III, was discussed in the preface. In a similar vein, early European settlers to Canada brought with them plants and seeds from home, and set up an informal system of sharing in their new settlements. In fact this practice continues in such annual events as Seedy Saturday, or other types of organized plant and seed swapping activities in both urban and rural communities. Upper Canadian historian Jeanne Minhinnick in *At Home in Upper Canada* notes that the practice of sharing continued into the twentieth century, even after the commercial nurseries and seed houses were well established: 'Seeds and roots were traded from farm to farm. To this day one is apt to find the same varieties of coleus and impatiens - those two great stand-bys for farmhouse windows - in all the houses of one area, while ten miles away different varieties will flourish'.

In Britain, professional gardeners to royalty and the nobility exchanged plants with each other, on behalf of their patrons or in their own right, and some of the earliest nurseries seem to have evolved from these initiatives. John Rose, royal gardener to Charles II, who specialized in grapevines, published his offerings in his 1666 book *The English Vineyard Vindicated*. A similar pattern is found in Toronto in the 1840s. John Gray (fl. 1846), author of *Catalogue of Green House Plants, Carnations, Picotees, Double Dahlias, &c. Cultivated and For Sale by John Gray, at the Grange Conservatories, Toronto,* was a gardener to William Boulton (1812–1874) and evidently operated a small nursery business out of the Grange greenhouses.

Organizations such as the local horticultural society or flower club play an important role in the non-commercial dissemination of plants. The Royal Horticultural Society, for example, through their sponsorship of plant collectors in the nineteenth century was able to distribute new and valuable horticultural plants to both nurserymen and to public and private gardens. In the first volume of its *Journal* in 1846, there is a table outlining the numbers of plants, seeds and cuttings distributed to both members, foreign countries and British colonies during the period 1840 through 1846, with annual totals of over 6,000 plants, over 50,000 seeds and over 5,000 cuttings.

An interesting Canadian example of an organization playing a large role in plant distribution is the nursery operation established by the railway companies, particularly the Canadian Pacific Railway. The CPR established nurseries in Montreal, Thunder Bay, Kenora, Winnipeg, Moose Jaw, Wolseley, Calgary, Revelstoke, Kamloops and Vancouver. Plants, including bedding plants, perennials, shrubs and trees, were grown for distribution to railway station gardens. For example, the Wolseley, Saskatchewan nursery site was established in 1908 under the direction of Swedish horticulturist Gustav A. Bosson-Krook (1879–1929) who had previously worked as a nurseryman for the CPR in Brandon. At the Wolseley site they grew trees suitable for the Prairies and tested the endurance of perennials to find those most suitable for the western Canadian climate. The annual reports show that the Wolseley stock in 1912 included 464,000 trees and shrubs, in addition to a plantation of 70,000 caraganas and 22,000 tamaracks. In 1920 the nursery filled 933 orders from their employees for 43,880 plants, mainly shrubs, trees and herbaceous perennials. Other CPR nurseries grew bedding plants and distributed seed. In the 1940s 11,000 packets of seed and 600,000 bedding plants were distributed to station agents, to beautify the gardens around the stations. Over a hundred varieties of flowers were available and prizes were awarded for the best gardens.

Public education

Nurseries play a crucial double role in horticulture – they are the main source for developing and disseminating plants to the public, and they act as an important educational resource on how best to grow them, based on hands-on professional experience. As a commercial enterprise, they have a vested interest in ensuring that the customer is satisfied with the plant material purchased, and that the customer has been given the necessary knowledge to grow those plants successfully in their own gardens. The educational role of nurserymen was an important factor from very early in their history. The famous nursery at Brompton Park founded in 1681 by several gifted professional gardeners including George London (ca. 1640–1713), dominated the market in the late seventeenth and into the eighteenth century. George London had trained with royal gardener John Rose, and had been employed by such eminent plantsmen as Henry Compton, the Bishop of London (ca. 1632–1713). By 1688 the partnership consisted of London and Henry Wise, and the business was run as a combined landscape design service and nursery. London and Wise worked together on some of the most important formal gardens of the day, including Chatsworth and Hampton Court. John Evelyn included an advertisement for London and Wise's nursery in his 1693 translation of the work of Jean De la Quintinie (1626–1688), gardener to Louis XIV, *The Compleat Gard'ner.* London and Wise produced their own abridged edition of this work in 1699, retaining Evelyn's introduction from the earlier edition.

68 Jean de la Quintinie. *The Compleat Gard'ner, with Very Considerable Improvements by George London and Henry Wise.* London: M. Gillyflower, 1699.
Jean de la Quintinie was the foremost gardener in France, responsible for the *Potager du Roi* for Louis XIV at Versailles, and he was an expert in fruit culture and pruning. In the seventeenth century French horticulture was far in advance of that in England, and John Evelyn, who travelled widely in France, introduced some of the new techniques to Britain, including *espalier* (training branches of fruit trees so that they grow in a formal pattern on one plane). London and Wise's abridgement was a smaller, more affordable and practical version, intended for working gardeners.

In the next century the Vineyard Nursery at Hammersmith operated by James Lee (1715–1795) and Lewis Kennedy (1721–1782) and later by their descendants, was certainly one of the finest in Britain, publishing a highly important catalogue of their nursery stock in 1774. The nursery specialized in exotic plants, and was the first to grow plants successfully from the seeds collected by Joseph Banks during Cook's first voyage to Australia. The firm also specialised in roses and John Kennedy (1759–1842) was one of those called in to advise Empress Josephine at Malmaison where he superintended the formation of the rose garden. Forty-eight roses were listed in the 1774 catalogue, rising to 220 by 1808. James

Lee was the first to translate Linnaeus from Latin into English in 1760. His *Introduction to Botany* was largely a translation of the *Philosophia botanica* of Linnaeus, published in 1751, which was an overview of Linnaeus's thinking to that point on matters of taxonomy as well as nomenclature. It explained his sexual system of classification and his method of naming plants, using a generic term together with a 'trivial name' or what we now call a specific epithet to create a unique binomial name for each species. The *Species plantarum*, published by Linnaeus just two years after the *Philosophia botanica*, is the starting point for our modern system of binomial nomenclature. Lee's translation went into many subsequent editions and it made him famous, attracting visitors from around the world to the Vineyard Nursery.

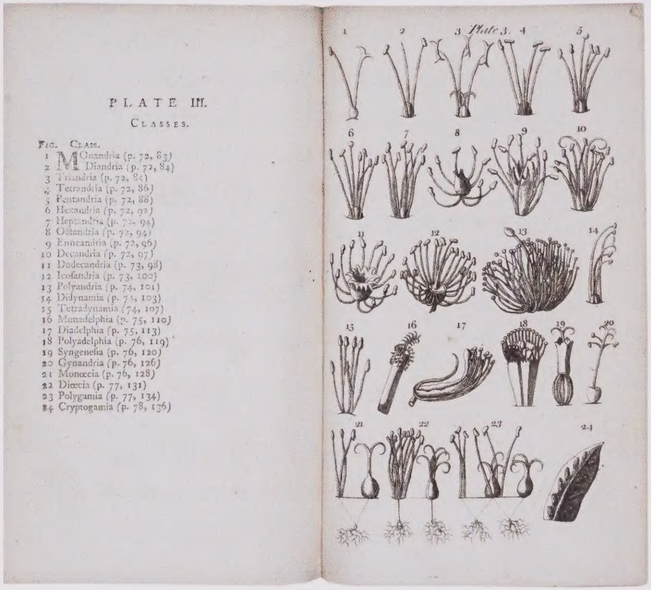


PLATE III.

CLASSES.

FIG.	CLASS.
1	MOnandria (p. 72, 83)
2	Diandria (p. 72, 84)
3	Triandria (p. 72, 85)
4	Tetrandria (p. 72, 86)
5	Pentandria (p. 72, 88)
6	Hexandria (p. 72, 92)
7	Heptandria (p. 72, 94)
8	Octandria (p. 72, 94)
9	Enneandria (p. 72, 96)
10	Decandria (p. 72, 97)
11	Dodecandria (p. 73, 98)
12	Icoſandria (p. 73, 100)
13	Polyandria (p. 74, 101)
14	Didynamia (p. 74, 103)
15	Tetradynamia (74, 107)
16	Monadelphia (p. 75, 110)
17	Diadelphia (p. 75, 113)
18	Polyadelphia (p. 76, 119)
19	Syngeneſia (p. 76, 120)
20	Gynandria (p. 76, 126)
21	Monœcia (p. 76, 128)
22	Diœcia (p. 77, 131)
23	Polygamia (p. 77, 134)
24	Cryptogamia (p. 78, 136)

69 James Lee. *Introduction to Botany*. London: J. and R. Tonson, 1760.

Plate three illustrates the twenty-four classes of plants devised by Linnaeus. The classification scheme was a simple one in which all plants were categorized according to sexual characteristics. Linnaeus's system was based strictly on the number of stamens, the male parts, and the number of styles, the female parts. All plants are grouped into twenty-four classes which are in turn subdivided into orders, the orders into genera and the genera into species. The twenty-four classes take their names from the number of stamens: for example the first class, monandria, signifies a flower with one stamen. The sexual system was one that was easy to understand and apply, and did not involve a detailed knowledge of plant morphology or require minute examination of the entire plant. Although it was an artificial system not based on any natural plant groupings or affinities, its accessibility made it popular and it remained in use until about 1810. Our present system of classification is a natural system, reflecting the evolutionary ancestry of plants. As further research including DNA studies takes place this does result in plants switching genera, causing consternation to gardeners and particularly to nurserymen and garden writers as they try to keep abreast of changes. For example, the popular garden plant bugbane, long known as *Cimicifugia*, has recently been subsumed within *Actaea*.

Most nurseries and seed distributors fulfill an educational role on a more modest scale than the examples discussed above, by issuing simple printed guides to cultivation which provide basic horticultural advice along with the seeds or plants they sell. The planting and cultivation instructions on the backs of seed packets are often the first and only easily accessible source of information available to the home gardener. Commericial nurseries and seedsmen do the best they can to ensure success, in order to attract repeat business and protect their own reputation.

70 *Steele, Briggs Amateur Gardeners' Guide*. Toronto: Steele, Briggs, ca. 1930. Also shown are three examples of the company's seed packets which date from 1890; an 1890 advertising poster and their catalogue for 1907.

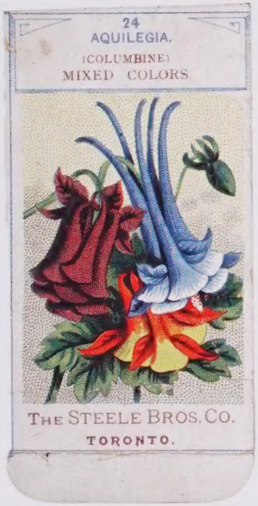
The major seed companies in Toronto in the late nineteenth century were William Rennie, George Keith, J.A. Simmers and Steele Briggs, all of which ran mail order operations, supplying seed to gardeners across the country.

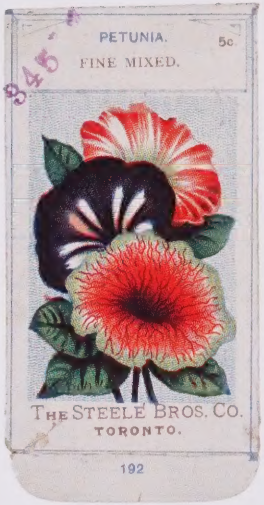
Nursery catalogues

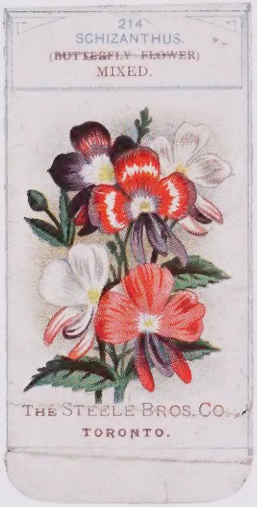
A consistent theme in any nursery catalogue is the claim that the nursery will guarantee their own stock, that the plants are coming from a reputable source, and have been correctly identified and named. In the first quarter of the eighteenth century, in an attempt to eliminate the confusion existing among amateurs and professionals alike regarding the naming of plants, a group of nurserymen around London began to hold monthly meetings. Calling themselves the Society of Gardeners, they examined and compared plants and studied the work of previous gardeners and botanists in order to arrive at a consensus as to the most appropriate name for a given plant. The Society included such eminent gardeners and nurserymen as Philip Miller, Thomas Fairchild, and Robert Furber (ca. 1674–1756). At their meetings they 'entered down in a register the names, descriptions, &c. of all the various kinds which were from time to time brought'. They then resolved to publish the results of their deliberations by issuing a joint catalogue of the trees, plants, flowers and fruits currently being grown in the gardens of the members which were available for sale. Three volumes were planned, but only the first, listing trees and shrubs, was published, probably because of the expense of including full-page coloured illustrations for some of the plants.

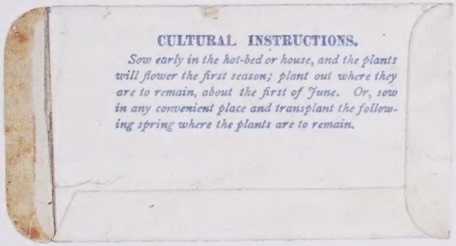
71 *Catalogus plantarum, tum exoticarum tum domesticarum, quæ in hortis haud procul a Londino sitis in venditionem propagantur = A Catalogue of Trees, Shrubs, Plants, and Flowers, both Exotic and Domestic, which are Propagated for Sale in the Gardens near London*. London: Printed for the Society of Gardeners, 1730.

The plates are a combination of hand-coloured engravings which were usual for the time, and mezzotints printed in brown and green. The mezzotints, including this plate depicting two species of *pinus*, are among the earliest examples of


24
AQUILEGIA.
(COLUMBINE)
MIXED COLORS.
THE STEELE BROS. CO.
TORONTO.

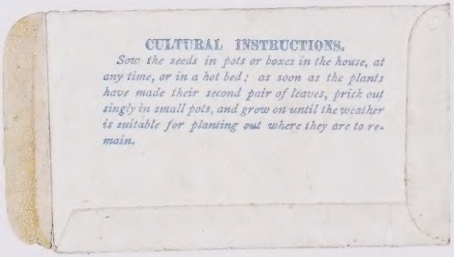

PETUNIA.
5c.
FINE MIXED.
345
THE STEELE BROS. CO.
TORONTO.
192


214
SCHIZANTHUS.
(~~BUTTERFLY FLOWER~~)
MIXED.
THE STEELE BROS. CO.
TORONTO.



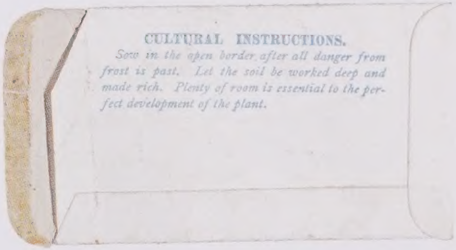
CULTURAL INSTRUCTIONS.

Sow early in the hot-bed or house, and the plants will flower the first season; plant out where they are to remain, about the first of June. Or, sow in any convenient place and transplant the following spring where the plants are to remain.



CULTURAL INSTRUCTIONS.

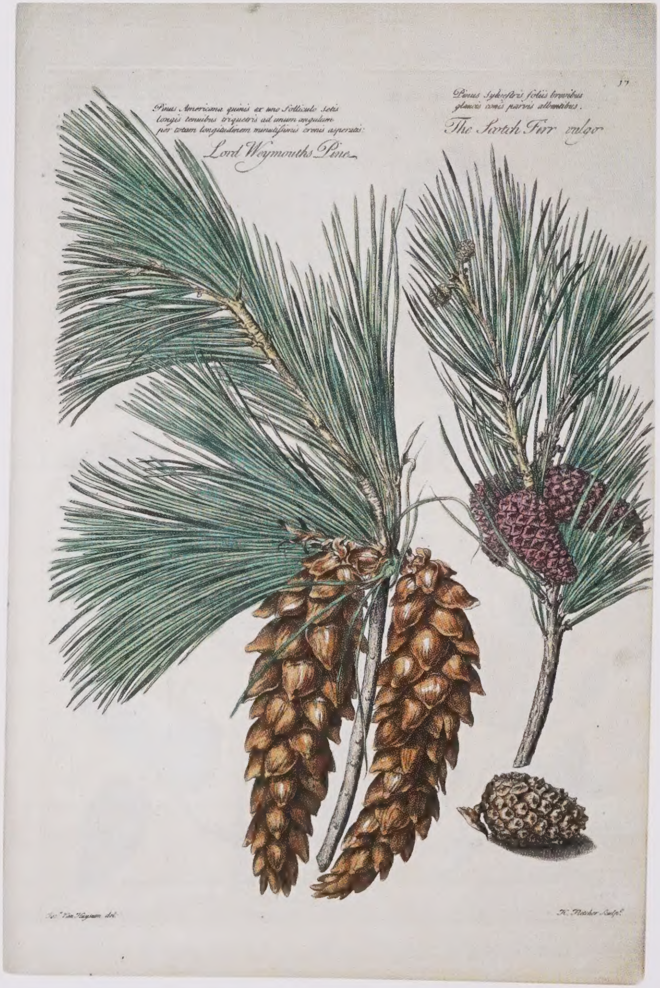
Sow the seeds in pots or boxes in the house, at any time, or in a hot bed; as soon as the plants have made their second pair of leaves, prick out singly in small pots, and grow on until the weather is suitable for planting out where they are to remain.



CULTURAL INSTRUCTIONS.

Sow in the open border after all danger from frost is past. Let the soil be worked deep and made rich. Plenty of room is essential to the perfect development of the plant.

colour printing. Evergreens, particularly conifers, were being imported from North America and were warmly welcomed into English gardens. In the catalogue description it is noted that Lord Weymouth's pine was named for him because it had been successfully grown in his garden long enough to have started producing seed, having been introduced only a few years before. Although it was imported from North America early in the previous century by a Capt. George Weymouth, it seems to have been named in honour of Viscount Weymouth who planted it in large numbers at Longleat beginning in 1705. This particular tree, the eastern white pine *Pinus strobus*, which is now the provincial tree of Ontario, was one of the


17
Pinus Americana quinis ex uno folliculo setis longis tenuibus triquetris ad unum angulum per totam longitudinem minutissimis crenis asperatis:
Lord Weymouths Pine
Pinus Sylvestris foliis brevibus glaucis conis parvis albentibus.
The Scotch Firr vulgo
Jac. Van Huysum del.
H. Fletcher Sculp.

American imports that was frequently used in creating the newly fashionable landscape gardens. The Scotch Pine, *Pinus sylvestris*, is described as 'commonly but falsely called the Scotch fir'.

Being able to browse a selection of living plants in bloom is an essential pleasure for any gardener, and has been one of the chief marketing tools for nurseries from the beginning. Thomas Fairchild was a nurseryman and member of the Society of Gardeners who had established a London nursery about 1691 where he raised thousands of plants. According to John Harvey in his groundbreaking work *Early Nurserymen*, Fairchild was one of the first nurserymen who was also an outstanding botanist. He wrote papers which were published in scientific periodicals and carried out pioneering work in hybridization, as well as publishing *The City Gardener* in 1722. He compiled a month by month list of the plants in flower in his own nursery over the course of the year from April 1722 to March 1723 which was published in three parts by Richard Bradley (1688–1732) in the periodical *The Monthly Register of Experiments and Observations in Husbandry and Gardening*. Fairchild encouraged the public to view plants at his premises at Hoxton on the outskirts of London: 'Their best way therefore to be informed will be to view the gardens at Hoxton and other places near the town, where they may see all the variety of flowers that blow [i.e. bloom] in the spring, summer and autumn season; and then consult with the gardener about those they like best, especially about which should be planted in autumn and which in spring.'

72 Richard Bradley. *A General Treatise of Husbandry and Gardening*. London: Printed for T. Woodward and J. Peele, 1726. 2 volumes.
The *Monthly Register* was republished in book form in 1726 under the title *A General Treatise of Husbandry and Gardening* . Fairchild was a great plantsman who managed to coax flowers to bloom even in the smog of London. In the list for May he mentions 'the Mule between the Sweet William and Carnation', referring to a cross which he himself had made a few years earlier (crossing *Dianthus barbatus* and *D. caryophyllus*), which is one of the first examples of deliberate hybridization. The resulting hybrid pink was long known as 'Fairchild's mule'. Fairchild's pioneering work showed that it was possible deliberately to create new plants, an experiment which was extremely controversial at a time when the concept of species was thought to be fixed and God-given. Nurseries have been one of the main sources of plant hybrids ever since.

The next best thing to viewing plants in a nursery setting is to read the published catalogues describing the stock available for purchase. In *Second Nature: A Gardener's Education* Michael Pollan writes that 'Catalogs lie at the center of the winter garden' and that in winter 'the gardener [consults] his catalogs, which blossom extravagantly at this season, luring him with their four-color fantasies of bloom and abundance'. Every gardener finds both instruction and inspiration in browsing through catalogues, whether they be simple printed lists or lavish colour-illustrated volumes, or the many excellent interactive nursery websites now available. Nursery and seed catalogues have even been treated as a literary genre in their own right, by Katharine S. White (1892–1977), writer and long-time fiction editor for the *New Yorker.* In an annual series of articles in the magazine beginning in 1958, she critiques a selection of nursery and seed catalogues from both a literary and horticultural point of view, recognizing their importance to gardeners:

> For gardeners, this is the season of lists and callow hopefulness; hundreds of thousands of bewitched readers are poring over their catalogues, making lists for their seed and plant orders, and dreaming their dreams.

Her pieces were so popular that they were later issued by her husband, E.B. White (1899–1985), in an entertaining collection entitled *Onward and Upward in the Garden.*

The printed catalogue evolved from earlier forms of advertisements such as newspaper notices. The first extant printed nursery catalogue in England is that of George Rickets of Hoxton which appears as three pages at the end of the 1688 edition of a work by John Worlidge (fl. 1669–1698) on horticulture, along with the lists of three seedsmen. The first book form catalogues date from about 1727, and the first priced catalogues began to appear about 1775. Harvey estimates that there were about three hundred lists and catalogues of nurserymen and seedsmen between 1675 and 1850, the majority of which were published after 1800.

73 John Worlidge *Systema horti-culturae, or, The Art of Gardening : in Three Books*. The third edition, with large additions. London: Printed for Tho. Dring, 1688.
George Rickets operated one of the most important of the early nurseries, with an influence well beyond London. Harvey reproduces the bill for plants sent by Rickets to the gardener at Levens Hall in Westmorland in 1689, which includes, in addition to fruit and other types of trees, such ornamental plants as roses, honeysuckle, lilies, tulips, anemones and jonquils, more than 1,700 items in all, at a total cost of over twenty-three pounds. The great gardener and plant collector Sir Thomas Hanmer (d. 1678) also mentions purchasing plants and bulbs from Rickets. The three-page catalogue included by Worlidge lists the nursery stock grown by Rickets and available for purchase, and is divided into four sections: greens that are housed in winter (i.e. plants requiring protection which cannot survive out of doors in the English climate), flower-bearing trees, winter greens (i.e. evergreens) and flowers and choice plants. There is a note at the end indicating that all types of 'the best sorts' of fruit trees and soft fruit are also available but these are not listed separately.

The first role of a nursery is to supply the public with plants, and since horticultural fashions change, like everything else, nurseries are constantly looking for new and improved plants to offer to their customers. New introductions are the result of either hybridization and selection, or the discovery of previously unknown forms. Both these aspects of horticulture are evident throughout the long history of the Veitch firm. Founded by John Veitch near Exeter in 1780, the Veitch nursery was carried on there by his son James (1792–1863) and grandson Robert (1823–1885). Another grandson, James Veitch Jr. (1815–1869), established a branch of the Veitch nursery in Chelsea in 1853. James Veitch sent out the firm's first plant collector, William Lobb (1809–1864), to South America in 1840, followed by his brother Thomas Lobb (1817–1894) to the far east in 1843. Members of the Veitch family, including James Herbert Veitch (1868–1907), grandson of James Jr. and the author of *Hortus veitchii*, also went on plant expeditions to the Far East and Australia. The constant search for new ornamental plants was continued by the firm into the twentieth century when they employed eminent plant collectors such as Ernest Henry Wilson (1876–1930) and William Purdom (1880–1921). Meanwhile, in the Veitch greenhouses talented horticulturists were engaged in growing the seeds and plants being sent back as well as developing new varieties and crosses. The propagation and hybridization of orchids was just one aspect of the firm's operations which brought them renown world-wide. Sir Harry Veitch (1840–1924), great grandson of the firm's founder, and an eminent member of the Royal

Horticultural Society, finally sold off the London operation in 1914, but the Exeter branch continued until 1969.

74 James Herbert Veitch. *Hortus veitchii*. London: J. Veitch, 1906.

James Veitch Jr. wrote this history of his family's firm and catalogue of their plants and published it in a limited edition 'for private circulation only'. It gives details of the botanical collectors and hybridists who worked for the firm, and includes a list of 'the most remarkable of their introductions.' Among the plants first introduced to the commercial market by the firm were many orchids both species and hybrids, but also such well-known garden plants as *Berberis darwinii* introduced by William Lobb, or *Rhododendron veitchianum* sent to the nursery by Thomas Lobb and first exhibited in flower at a meeting of the Royal Horticultural Society in 1857. The longest and most effusive description in the book is not for an orchid, but for *Lilium auratum*, introduced by John Gould Veitch in 1862. James Veitch writes of it that 'when the day comes that the House of Veitch must pass, it may well and safely leave its laurels with the "Golden-rayed Lily of Japan"'. *Lilium auratum*, in turn, was the ancestor of innumerable new garden lilies marketed today.

In Canada, the nursery catalogue traces a similar evolution from humble beginnings, with newspaper notices and broadsheets being the first indication of a fledgling trade. Patricia Fleming and Sandra Alston provide information in *Early Canadian Printing* on John Wright, who advertised himself as 'gardiner and surveyor of his Majesty's gardens, in the city of Quebec', and inserted notices abut seeds and plants for sale in the *Quebec Gazette* beginning in 1767. Wright explained that he had been collecting seeds for the previous three years, and that he could supply seed of four hundred different species 'each parcel pack'd up with the greatest care, the proper botanical name, with the soil each plant requires, marked on the back of each parcel'. In a printed broadside the same year he described himself as a 'collector of American seeds, for a society of noblemen and gentlemen in Scotland', and advertised 584 trees, shrubs and plants, including twenty oaks and sixteen maples. A few years later he evidently had a market garden, selling both shrubs and produce, but early in 1774 he went bankrupt and left the country.

The earliest Ontario catalogue still surviving is an eighteen-page pamphlet which lists the stock of seeds and plants sold by William W. Custead at his Toronto Nursery on Dundas Street. It must have been a large operation because he mentions that he had nearly 20,000 apple trees, from one to seven years old. In his preface Custead makes mention of the persistent problem nurserymen encounter, just as Philip Miller and the London nurserymen did a century or more before – the confusion over nomenclature:

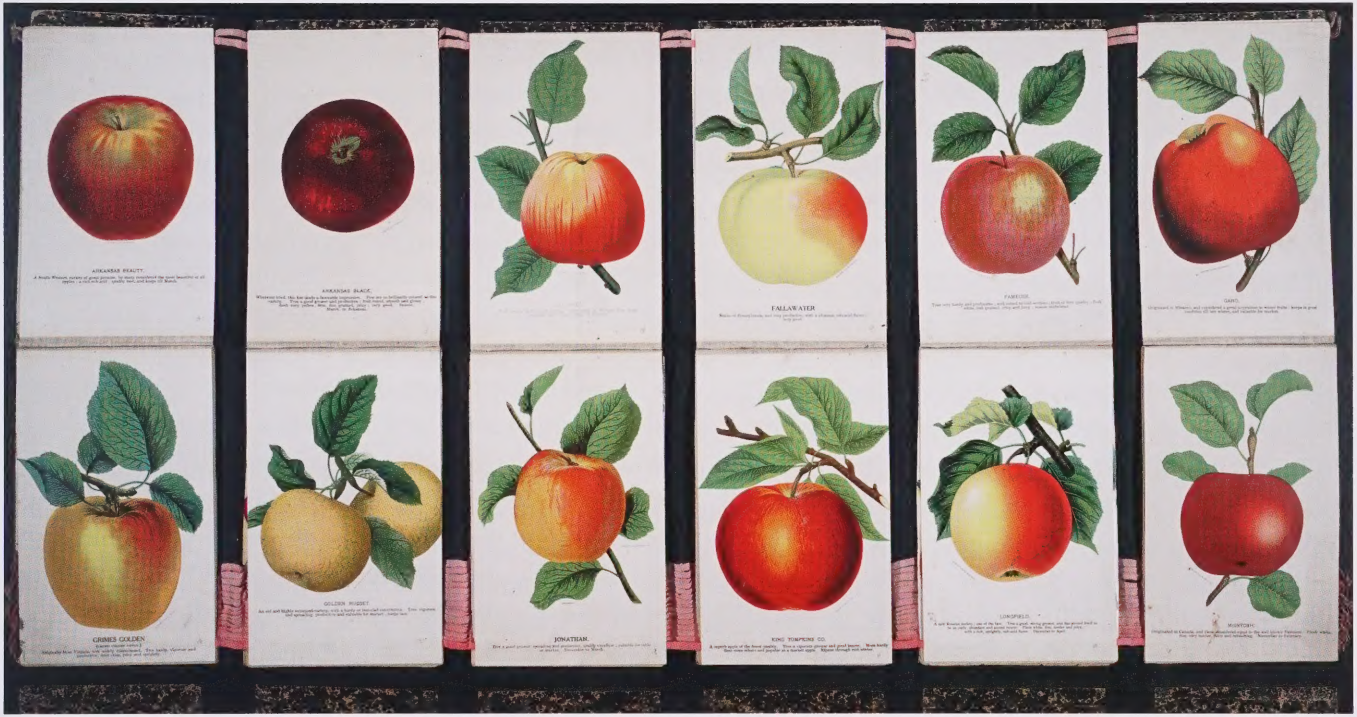
> mistakes are often made in the proper names of trees, plants &c. by the ignorant and careless, to the great mortification of the purchaser ... the public may rest

> assured that the greatest care will be taken to prevent such disagreeable occurrences in this establishment, all the business is done by my own hands.

Custead was correct in emphasizing that a local or regional nursery, especially one which grows its own stock or sources their plants in the area, is the best source of information on which plants will thrive. However, not everyone is fortunate enough to live close to such a nursery, especially before the advent of the automobile, and travelling salesmen filled the gap by taking the nursery, or at least its catalogue, to the individual buyer. In the mid- to late-nineteenth century salesmen representing large nurseries travelled widely throughout Canada, selling plants, and particularly fruit trees. The development of new varieties of fruit, especially apples, was intensive at this time, and the new introductions were advertised as far superior to those previously in common use. Since apples are infinitely variable when grown from seed, the only way to ensure that you were getting the named variety was to purchase small trees or scions to graft yourself. There was a huge and lucrative market for such sales, because every homeowner whether in city or country grew fruit for their own use, and there was an international market for both apples and cider.

Rochester, New York, was an important centre for nurseries from the 1850s on, and a printing industry to supply plates for nursery catalogues developed alongside them. Dellon Marcus Dewey (1819–1889) was the first to establish a business supplying watercolours of fruit and plants, which were used as catalogues by travelling salesmen. Original watercolours were later replaced by printed illustrations, using stencilling, and a combination of lithography and later still chromolithography to produce beautiful colour plates. A selection of the illustrations representing stock from a particular nursery would be bound into a pocket-sized book with a leather cover stamped with the name of the nursery. The copy on display has a number (No. 5069) as well as the name of the La Pointe nursery stamped on the cover, presumably as a way of accounting for the various copies. These sample books would have been expensive to produce, and the copies used by salesmen were no doubt assigned and individually tracked. Similar sample books are known for nurseries in Massachusetts and Newark, also using plates supplied by Rochester firms. This copy includes plates by the Stecher Lithographic Company and two other Rochester printing firms, representing stock available from the La Pointe Nursery Company of Geneva, New York. This book could well have been used by company salesmen in the Niagara region in Canada as well as throughout New York state and beyond.

75 La Pointe Nursery Company salesman's sample book of coloured horticultural specimen plates. Rochester, ca. 1887–1905.


ARKANSAS BEAUTY.
ARKANSAS BLACK.
FALLAWATER
FAMEUSE.
GANO.
GRIMES GOLDEN
GOLDEN RUSSET.
JONATHAN.
KING TOMPKINS CO.
LONGFIELD.
McINTOSH.

The illustrations depicted in this sample book are predominantly of fruit and other useful plants but some ornamentals are also included, particularly roses. This example contains a total of 204 plates, mounted in thirty-four rows of six, the plates in each row joined together by cotton tapes, folding into a wallet-style black leather cover. The fruit section includes forty-five kinds of apple, thirteen pear, thirteen peach and twelve cherry, in addition to plums, apricots, quince, grape and other soft fruit. The horticultural section includes forty-four types of shrubs and climbers and nineteen roses as well as bulbs.

Combining a landscape design service with a nursery is not unusual, going right back to London and Wise's Brompton Park in the seventeenth century. In the case of Ontario's Sheridan Nurseries, founded by the husband and wife team of Howard Grubb (1881–1965) and Lorrie Dunnington (1877–1945), both partners were professional landscape architects. Howard Grubb trained at Cornell and then talked his way into the firm of Thomas Mawson in London, quickly going on to design the Peace Palace Gardens in The Hague. Lorrie Dunnington trained in England, and was the first female landscape architect to practice in England. They met at a lecture given by Lorrie Dunnington in London in 1910, married the following year and came to Canada in 1911 on a contract sponsored by the Canadian Pacific Railway to write about the country and promote immigration. They immediately opened a Toronto office as landscape gardeners, and soon found that the ornamental plant material they needed in their landscaping projects was not readily available. Although there were nurseries in Ontario at that time they were mainly situated in the Niagara region and specialized in fruit.

After a couple of very short-lived attempts to start their own nursery, which was originally named Humber Nursery because of its location on the Humber River, the Dunnington-Grubbs realized they needed a trained horticulturist, and in November 1913 they advertised in the *Gardeners Chronicle* for a nurseryman. The person who came to their rescue was Swedish-born Herman Stensson (1877–1939) who had worked in Denmark in the gardens of the Crown Prince at Knuthenborg Castle. Money was in short supply, and it is interesting to note that a stipulation of his contract was that he was permitted to sell produce from his own vegetable garden. This is a time honoured tradition for professional gardeners as a way of supplementing their income.

It is astonishing to see how quickly the nursery grew. The first catalogue was issued in 1914, consisting of thirty-two pages, with no illustrations. By this time the nursery had moved to the small town of Sheridan, Ontario, now part of Oakville, just to the west of Toronto. The following year the catalogue grew to forty-eight pages, with four pages of illustrations. The first trade list was issued in 1924, and by the fall of 1925 they were advertising that they had 250 acres under cultivation. Not surprisingly the first couple of catalogues mainly featured perennials, as these were fast-growing and would be ready for sale more quickly than trees and shrubs. The first catalogue began with a sixteen-page list of perennials, with shorter lists of shrubs, trees, climbers and a single page for conifers. By the second year there were four pages listing conifers. The 1918/19 catalogue includes a photograph of trees growing in the nursery, showing that large plants were already available for sale. By 1925, when the firm acquired additional property, 3,000 ten-year old Colorado blue spruce were already available for sale. The Sheridan evergreen exhibit at the Canadian National Exhibition that year won a prize. By this time the perennials were taking second place to the ornamental shrubs and trees in the catalogue listings. At the time of their twenty-fifth anniversary in 1939 Sheridan had three hundred acres of nursery stock in several different locations.

From the beginning Sheridan offered a broad range of hardy plant material, using both native and non-native plants, which were all grown in their own fields and greenhouses. By the second year they were already offering both the native hemlock and a weeping hemlock, advertising six-inch plants for sale at twenty cents and fifty cents respectively. Purple beech was listed in the 1916/1917 catalogue, and tree peonies were available from the very first year. Roses were listed beginning with the 1917/18 catalogue and 100,000 roses were still being grown in the 1980s.

The horticultural staff at the nursery were constantly testing plants for hardiness and were also able to implement an intensive program of selection because many of the stock plants were grown from seed. Sheridan Nurseries obtained the first Korean boxwood as seedlings from the Arnold Arboretum at Harvard in 1922, and had sufficient stock to be able to offer it for sale by 1940. In the 1930s a number of hardy chrysanthemums were developed at Sheridan, and after World War II an extensive program of plant selection continued with the release of the Mountbatten Juniper, the Sheridan Hybrid Boxwoods, the Ivory Silk Tree Lilac and many other plant selections. Some of Canada's most respected horticulturists have been on the Sheridan staff, including Art Drysdale (1939-) and Lawrence Sherk (1936-) who was Chief Horticulturist from 1969 until his retirement in 2001. Combining promotion with education, Sherk was encouraged to make radio and television appearances and give talks to local Horticultural Societies and other groups interested in gardening. Sheridan Nurseries is still a family firm, carried on by subsequent generations of the Stensson family, and will be celebrating their hundredth anniversary in 2013.

76 Sheridan Nurseries. *A Garden Manual and Catalogue of Perennials, Shrubs, Trees, Evergreens, Climbers, Roses : Grown by Sheridan Nurseries at their Nursery Farms near Clarksons, Ontario.* Toronto: Sheridan Nurseries, 1917.

Sheridan's first catalogue of thirty-two pages was issued in time for the fall 1914 / spring 1915 seasons. The fourth catalogue had grown to seventy-two pages, and was the first to have a cover design by artist A. Scott Carter (1881–1968), who may have been acquainted with the Dunnington-Grubbs as fellow members of the Arts and Letters Club in Toronto. The title used from the second catalogue on 'garden manual and catalogue' reinforces the educational role of the nursery, as horticultural advice was included in the catalogues along with suggestions for garden layout and design. The title also emphasizes the policy of listing only proven stock, grown in their own facilities which, therefore, was guaranteed.

Section Three : Learning from Experience
(READING ROOM CASES AND WALLS)

> This I have learnt not only from common opinion
> And searching about in old books, but from
> experience –
> Experience of hard work and sacrifice of many days
> When I might have rested, but chose instead to labor.
> Walahfrid Strabo (807?-849). *Hortulus* / translated by Raef Payne; commentary by Wilfrid Blunt. Pittsburgh: Hunt Botanical Library, 1966.

There is no such thing as an armchair gardener – no matter how many books or magazines or nursery catalogues we read, or how much time we spend looking at other people's gardens, the only sure way to learn about gardening is through our own lived experience. Since so much depends on locality gardeners must learn first hand about their own particular conditions of soil, precipitation, sun exposure, local flora and fauna in order to be successful, whether we garden in a container on a high-rise balcony or on a large country property. Trial and error is the only method that will ultimately produce results, and this requires patience, optimism, creativity, and a certain amount of record-keeping. Keeping accurate records has even been seen as one key to success. In 1679 the nurseryman Moses Cook wrote in the preface to his *The Manner of Raising, Ordering and Improving Forest and Fruit-Trees*:

> I always took notes of what I did set or sow, the time, and on what ground, &c. and when it proved well, I noted it so; but when ill, I did endeavour as much as I could to know the reasons; which when once I found, I noted it well.

All gardeners at some point feel the need to keep track of the plants we are growing, to note precisely which plants we have, where those plants are situated, how we obtained them, and how well they thrive. Like Cook, we make notes about successes and failures. We record which plants are in bloom when, what tasks need to be undertaken at certain times, the harvest we reap each year, and our plans for the next growing season. This section of the exhibition will explore some of the ways gardeners have documented their own gardening activity.

Plant lists

The most common example of garden record-keeping is a simple plant list, itemizing the plants in a particular locale. The list records the name of the plant, and is sometimes annotated with notes about growing conditions, additional details about the plant's habits or characteristics, or dates or sources of acquisition. Not surprisingly, very few early examples survive, since they were made in the first place as personal records, not intended for publication to a wider audience. Their historical significance lies in the fact that they document which plants were available at a particular time and place. Such lists are especially valued as a record of the date of first introduction of foreign plants, but they are also of interest because they give us a glimpse of a gardener's record of his or her own gardening activity. The earliest English example of a published plant list of a single garden is the catalogue issued in 1596 by John Gerard of the plants in his own garden in Holborn. This was his first publication, issued before his *Herball.* The list of more than a thousand plants which Gerard himself grew, is now known by only a single copy which once belonged to the physician and collector Sir Hans Sloane. In 1599 Gerard issued a second catalogue of the plants in his garden, of which several copies are known. It is likely that such relatively modest printed lists were issued in very small numbers for circulation to a select group of Gerard's friends and fellow plant enthusiasts, perhaps to facilitate exchange of plants among themselves.

Several decades later we also have two editions of the list of plants in the famous Lambeth garden of the Tradescants. Both John Tradescant the Elder and his son John (1608–1662) were appointed royal gardeners. They were passionate plant collectors, with a network of links to other amateur and professional plantsmen across Europe, and were responsible for many plant introductions. Tradescant the Elder worked for three great aristocrat gardeners before he became royal gardener to Charles I at Oatlands Palace. In 1610 he went to work for Robert Cecil (1563?–1612), 1st Earl of Salisbury, who sent him to the continent to buy plants for the new gardens at Hatfield House. By 1615 he was employed by Edward Lord Wotton (1548–1628) at his elaborate formal garden at St Augustine's Abbey, Canterbury. From about 1624 he was with George Villiers (1592–1628), 1st Duke of Buckingham, at his property in Essex called New Hall, who sent him on another buying trip to the Low Countries, this time to purchase trees. Tradescant also travelled later to Russia and Algiers, returning from both places with new plants. The Tradescants were investors in the English Virginia Company and the younger Tradescant made the first of three trips to Virginia in 1637. Their North American plant intro-ductions were obtained through the Virginia Company but also came to them because of their contacts with French nurserymen and gardeners such as the Robins. The elder Tradescant had met Jean Robin (1550–1629) on his plant buying trips to the Continent early in his career.

In 1634 Tradescant published a catalogue of the plants in his garden which is known from only a single copy, formerly in the possession of plant collector John Goodyer (1592–1664), who supplied many plant descriptions to Thomas Johnson for the second edition of Gerard's *Herball.* It lists over seven thousand plants, including many varieties of fruit trees (forty-eight varieties of apple, forty-five of pear, fifteen cherry, twelve peach) and some forty North American plants. This may have been published to facilitate plant exchange or plant sales, as the Lambeth site evidently operated partly as a nursery garden where plants were sold to visitors. The second edition of the plant list was published in 1656, after the elder Tradescant's death, as a separate section in the catalogue of the entire Tradescant collection compiled by the younger John with Elias Ashmole (1617–1692). In addition to plants the Tradescants collected all manner of natural history specimens and other curiosities, which they displayed to visitors in their home. Known as 'the Ark' this extraordinary collection was acquired by their neighbour Elias Ashmole who presented it to Oxford University in 1683 where it formed the nucleus of the old Ashmolean Museum.

77 John Tradescant. *Catalogus Plantarum* in: *Musaeum Tradescantianum, or, A Collection of Rarities Preserved at South-Lambeth neer London*. London: Nathanael Brooke, 1656. The plant list takes up pages 73–178 of the volume. The Tradescants are credited with being the first to grow some of the North American native plants which have subsequently become highly-valued garden plants, for example Virginia Creeper (*Parthenocissus quinquefolia*), columbine (*Aquilegia canadensis*) and cone flower (*Rudbeckia laciniata*). The Canadian species is one of more than sixty in the aquilegia genus, which also includes the British native *Aquilegia vulgaris*. The species plants are still grown today, but large numbers of hybrids are also available in a range of colours, heights and forms, crossing British, European and North American varieties. The listing is shown with a watercolour of the Canadian wildflower by Agnes Fitzgibbon Chamberlin, done in the 1860s.

A very common way of keeping plants lists is to mark up a published work, making corrections and additions to reflect one's own experience. For example, John Tradescant the Elder kept a hand-written list of the foreign plants he acquired by making notes in his own copy of Parkinson's *Paradisus*.

78 William Withering. *A Systematic Arrangement of British Plants*. London: Scott, Webster, and Geary, 1835.
The nineteenth-century published list of British plants shown here is supplemented throughout, not only by extensive hand-written notes, but also by attaching actual plant specimens in the relevant places in the text. A total of fifteen pressed plants have been inserted, including this dried specimen of toadflax which is securely sewn to the page on top of the entry describing it.

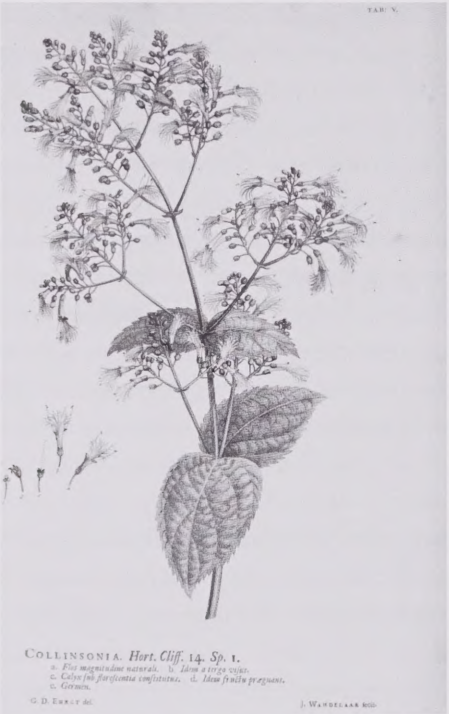
Florilegia

At the other end of the spectrum from simple printed lists such as these, but often serving basically the same purpose in documenting the contents of an individual garden, are the lavish illustrated florilegia of the seventeenth century. The term florilegium originally referred to a compilation of any sort, but later developed the specific meaning of an illustrated text containing botanically accurate paintings of plants. Florilegia gained popularity at a time when plant knowledge was expanding and new and beautiful flowering plants, particularly bulbs, were being introduced to the gardens of Europe by wealthy plant enthusiasts. Basil Besler (1561–1629) produced a magnificent folio catalogue of almost seven hundred plants in the garden of the Bishop of Eichstätt in 1613, *Hortus Eystettensis*, which was the earliest pictorial record of flowers in a single garden. Over a century later one of the first publications of Linnaeus was a catalogue of the plants being grown by George Clifford (1685–1760), a wealthy Anglo-Dutch banker and Director in the Dutch East India Company. Clifford cultivated extensive gardens and hothouses, each devoted to the plants of a different region – southern Europe, tropical Asia, Africa and the Americas. The young gardener and botanical painter Georg Ehret (1708–1770) visited Clifford's garden at Hartekamp, near Haarlem, while Linnaeus was staying there and Clifford engaged him to provide the plant drawings to accompany the descriptions which Linnaeus was preparing. The volume was published in 1738 as *Hortus Cliffortianus* and Ehret's drawings were used for twenty of the thirty-four plates. These elaborately illustrated early florilegia were extremely expensive productions with a very limited market, financed by the individual patron to celebrate his own achievements, and are valued today as superb examples of the art of botanical illustration. In the nineteenth century the tradition was continued in the series of volumes of the gardens at Malmaison illustrated by Pierre-Joseph Redouté (1759–1840) for the Empress Josephine. The most famous of these were *Les Liliacées* (1802–1816) and *Les Roses* (1817–1824).

79 Carl von Linné. *Hortus Cliffortianus*. Amsterdam: Privately printed, 1737.
This work is important botanically because it was one of the first attempts by Linnaeus to work out his sexual system of plant classification, which eventually culminated in the publication in 1753 of *Species plantarum*. Linnaeus explained his theory to Ehret while they were both working for Clifford, and Ehret drew a table illustrating the classification, which he published himself after he left Hartekamp. The table was later used by Linnaeus, without attribution, in *Genera plantarum* in 1737. The illustrations by Ehret for the *Hortus Cliffortianus* include detailed drawings of the pistils and stamens. Ehret later moved to London where he married Philip Miller's sister-in-law and continued to have a distinguished career as a botanical draughtsman and teacher. Plate V shows *Collinsonia*, named for Peter Collinson, the first to grow the plant in England from seed sent to him by John Bartram.

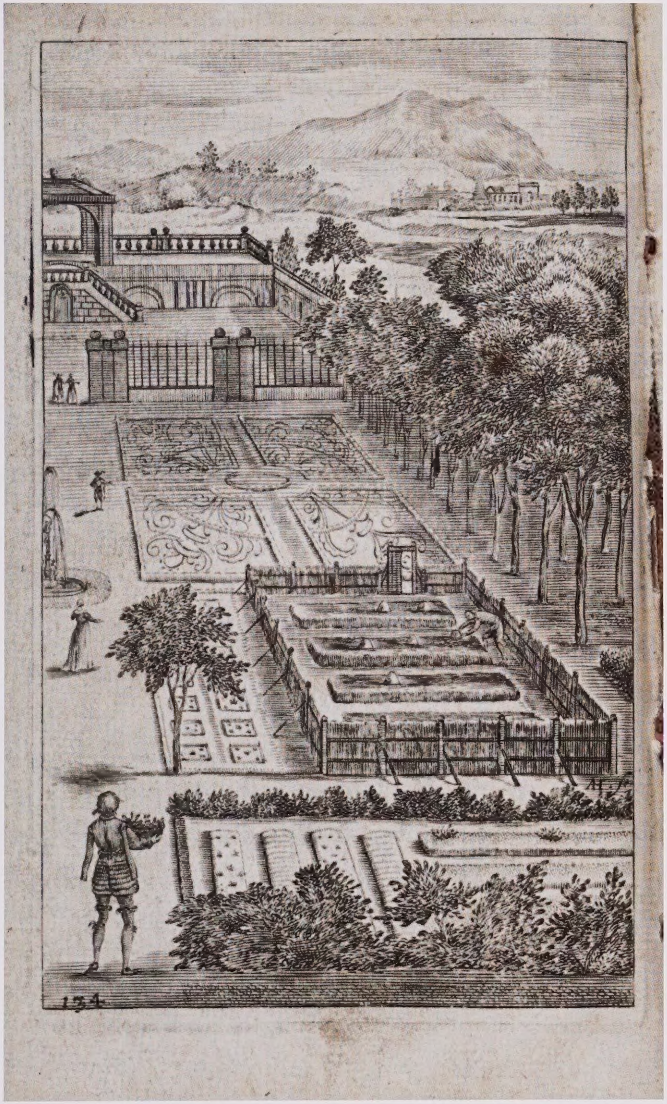
Garden journals

Another very common way in which gardeners document their own activity is by maintaining a daily or seasonal journal. These are generally personal documents, recording both practicalities of rainfall, temperature, pests and disease, and times of bloom or harvest, but also often conveying a sense of the pain and pleasure the gardener


TAB. V.
COLLINSONIA. Hort. Cliff. 14. Sp. 1.
a. Flos magnitudine naturali. b. Idem a tergo viſus.
c. Calyx ſub floreſcentia conſtitutus. d. Idem fructu prægnans.
e. Germen.
G. D. EHRET del.
J. WANDELAAR fecit.

experiences throughout the growing season. A very few garden notebooks of this type have been published, usually because the individual in question is an important historical figure and the garden journal has come to light as a relatively minor part of the documentation on their lives. For example, Thomas Jefferson (1743–1826) faithfully kept a garden book which was published for the first time in 1944. Between 1766 and 1824 Jefferson recorded his horticultural successes and failures in his vegetable and ornamental gardens in a yearly calendar, including records of the varieties he planted (for example, he grew fifty varieties of peas and forty-four of beans), the times of sowing, transplanting and first harvest and how a new variety compared with others previously grown.

In 1932 a manuscript journal kept by Sir Thomas Hanmer (d. 1678) was acquired by the London bookseller Davis and Orioli, which was transcribed and published the following year as *The Garden Book of Sir Thomas Hanmer*. In fact, the manuscript, which consists of recommendations on the choice of hardy garden plants and tips for their successful cultivation, was prepared for publication, but for unknown reasons was never issued. It contains a wealth of information on gardening practices of the mid- to late-seventeenth century, and on plant introductions at a time when many new plants were becoming available, particularly all types of bulbs from the Mediterranean region. Hanmer, a noted gardener and plant collector, had been cup bearer to Charles I and, like so many others at that time, retired to his country estate and devoted himself to gardening during the Commonwealth period. His circle of gardening friends included John Evelyn (1620–1706) and John Rea (d. 1681), who dedicated his *Flora, seu, de florum cultura*, to Hanmer, acknowledging him in his preface as the source for many of the plants in his own garden, and describing Hanmer's collection as 'incomparable'.



Hanmer was an enthusiastic practising gardener, and his *Garden Book* is a useful guide to ornamental gardening, but it is of interest in the present context because among the Hanmer family papers are preserved portions of his own gardening notes dating from the 1650s through the 1670s, many of which must have been the basis for the text that became the *Garden Book*. A few of these were printed following the main text of the *Garden Book* and his descendent, John Lord Hanmer (1809–1881) quotes from others in his *Memorials of the Family and Parish of Hanmer* published in 1877. In these notes we see Hanmer carefully keeping track of the specific varieties he was growing, their exact location, the source from which they were obtained, and whether or not they proved hardy in his garden. For example, the notes headed '1660. Flowers in the Great Garden. December. Bettisfield' begin with an itemized list of the contents of each of the 'four little bordered beds in the midst of the bordered knot', each of which was planted in rows or ranks. After enumerating all four beds he continues with the rest of the garden:

> The border under the south wall in the Great Garden is full of good anemones, and near the musk rose are two roots of the daffodil of Constantinople from Rea and a martagon pomponium. In the border under my Lady's closet are anemones and two pieces of Lière de Paris and 2 double ranunculuses and a great root of Georgina tulips and a root of Queen May and some tulips I know not what and 2 good red cowslips and 2 roots of two sorts of rare Virginian martagons.

These very detailed gardening notes are typical of those which gardeners in any time or place keep for their own use. It is important to keep an accurate record of what is growing in the garden, and of where individual plants were obtained (Hanmer notes that he received some from Rea, meaning fellow gardener John Rea), so that we can acquire more or different varieties, and also to determine where we might have an empty spot to plant them. His note that there are a few plants which he can not identify or recall ('tulips I know not what') resonates with all gardeners.

A century or so later Gilbert White (1720–1793) was observing the natural world around him and working in his garden at Selborne. His popular book *The Natural History & Antiquities of Selborne* was first published in 1789 in the form of letters to two other naturalists, but was based on the daily journals he had kept between 1768 and 1793. Before he began his naturalist's journal he kept a garden calendar, recording details of his acquisition of garden plants and seeds, the preparation of garden beds, sowing, transplanting and harvesting and his struggles with weather, disease, bugs and other garden problems. In his various entries for 1756 we can pick out those which tell the story of his 'cantaleupe' crop. Melons are challenging for gardeners even today, although we now have many more disease-resistant and short-season hybrids available, because they require warm temperatures throughout a relatively long growing season. Melons had been successfully grown in England since the previous century, when gardeners began to use fermenting leaves, manure, tanner's bark and other organic material to provide bottom heat in specially prepared trenches (called hotbeds), to force plants and extend the season of growth. It was a gardening challenge which White took up with determination. The year before, in March 1755, he had 'carried Mr. Garnier's cantaleupe seeds ... in my breeches pocket for six or eight weeks' to ensure the warm temperature necessary for germination.

The first entry, for 14 January 1756 describes White making a 'melonry' or hotbed forty-five feet long, and in February he prepares a smaller hotbed for the seedlings. On 1 March he plants two types of melons, and the plants began to appear a week later. On 19 March, with snow all day, he reports problems with mould, but by 10 April he is transplanting the remaining seedlings into the large carefully prepared melon bed, taking the precaution of sowing some additional seeds 'for fear some plants ... should miscarry'. On 1 May disaster strikes, as the bed is 'so flooded by those vast rains that all the plants are dead'. On 6 May he starts over: 'Broke-up my ... Cantaleupe-bed, & work'd it up with five dung-carts more of hot-dung' and plants the bed a second time, with 'Waverley-Cantaleupe, & Romania-melons'. The plants appear and he carefully nurtures them as they flower and set fruit. By 2 August he is sampling the first melon, and throughout August is harvesting the different varieties.

One of the best for flavour is 'one of the first crop, the only one that survived; & was moved in a careless manner back into the seedling-bed; & brought back again when the bed was new-worked up'. In September he purchases a large melon, which was very 'high-flavour'd' and he sensibly decides to save the seed. His last melon is cut on 25 October, which makes a total of forty-one for the season. As any good gardener does, he learned from his mistakes and in January of the following year we read 'Levelled, and widen'd the Area of the Melon-Ground ; having made an underground Drain to prevent it's being flooded any more.'

80 Gilbert White. *Gilbert White Garden Kalendar, 1751–1771*; Reproduced in Facsimile from the Manuscript in the British Library ; Introduction and Notes by John Clegg. London: Scolar Press, 1975.
Most of the text of the calendar had been previously published in 1900 in the edition of the *Natural History* edited by R. Bowdler Sharpe (1847–1909), and in the 1986 edition of the complete journals edited by Richard Mabey (1941-), but this facsimile shows the journal entries in White's own hand. The book is open to the pages with the entries for 27 March to 10 April, a very busy time in the garden. The entry for 31 March records 'Planted four limes in the Butcher's Yard, to hide the sight of Blood, & filth from the Windows'. Two of the four lime trees White planted are still there and can be seen today by visitors to the village and to the Gilbert White Museum in Selborne.

Garden journals are kept in every time and place. The Canadian examples in this exhibition document the same sort of daily details of planting and harvesting, garden pests, inclement weather and experiments with technique that we have seen in the published examples. John H. Frothingham (1788–1870) moved to Montreal from Portland, Maine to open a hardware store. In 1836 he formed a partnership with William Workman and their firm became the largest hardware and iron wholesale firm in British North America. Frothingham built a mansion, Piedmont, on Mount Royal in Montreal where he created gardens, including a vegetable garden intended to supply the household as well as to generate extra income. In his Diary of Expenses for the period 1826–1837 he records the sources of plants and seeds 'bulbs from Young', and 'Prince & Sons for pear trees' and sometimes names precise cultivars 'Irish patriot gooseberries', or 'Isabella grapes'. He was an active member of the Montreal Horticultural Society.

81 John Frothingham. Memorandum of Garden Orchard &c. Montreal, 1843 to 1849.
Frothingham purchased the Piedmont estate in 1831. His wife died in June 1843 and he begins this journal with a sad reflection on past events – 'The last book began with the possession of this place call'd Piedmont and ended with the death of her for whose health and happiness I bought it'. He pays tribute to his wife as a gardener, with 'a great taste for flowers', noting that 'almost everything around us reminds us of her, as some

things were planted, and all directed by herself'. The journal is open to entries for May 1844 which record the tulips being out on 14 May; setting out annuals on the 22nd, the pear tree beginning to bloom on 2 June, and his ongoing struggle to kill 'armies of caterpillars'.

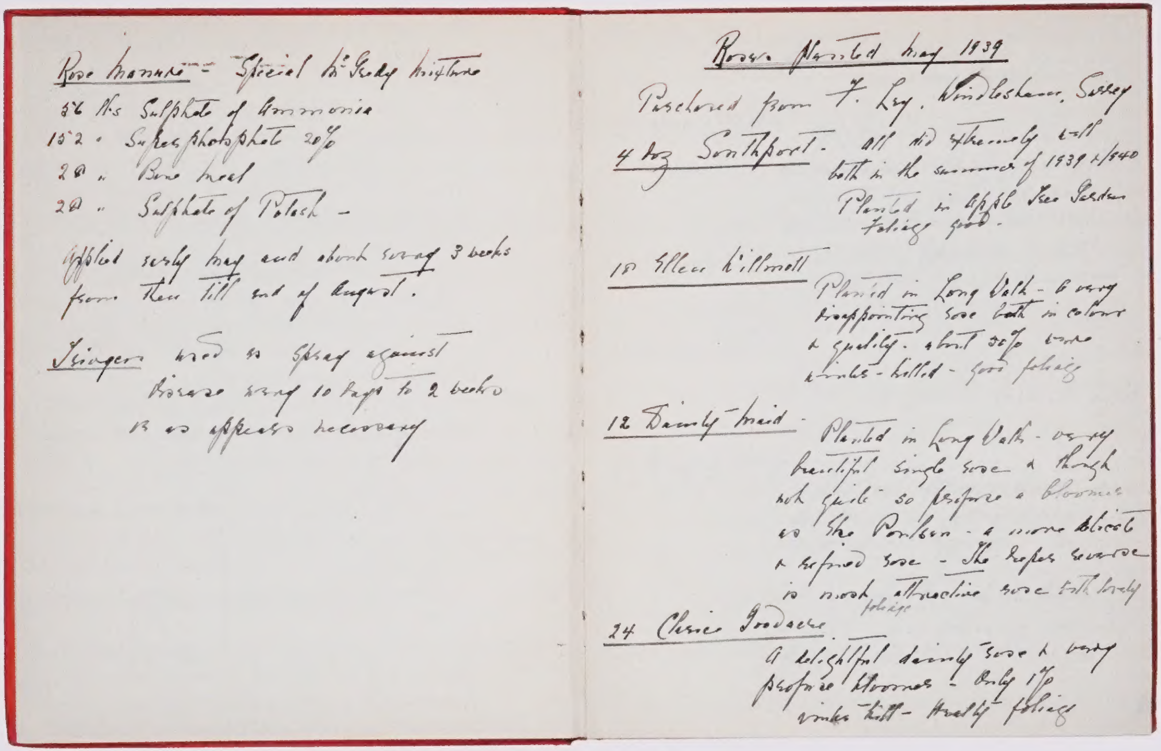
Elsie Reford kept annual diaries and notebooks on the development of her garden in the lower St. Lawrence from 1926 to 1958. She began the garden when she was in her fifties, and it took a decade to build, under extremely difficult conditions of climate and soil, with no nurseries nearby and only one hundred and ten frost-free days. She grew plants which could adapt to the local conditions, such as the Himalayan blue poppy, roses and alpines, and was a pioneer in experimenting with perennials in a northern climate. She cultivated lilies on a large scale, including species lilies, and tested some of the then new experimental hybrids being developed. Among these were the new hardy lilies of Canadian horticulturist Isabella Preston, who visited the Reford garden and was amazed to see her lilies thriving beyond even her own expectations. Elsie Reford also collected meconopsis, gentians, roses, peonies and primulas.

82 Elsie Reford. Daily garden journal, 30 May to 10 October 1931.
Lilies are noted at various points during the season, beginning with an entry on 9 July, 'Lilium martagon also beginning to flower well for the first time planted three years ago'. Various lilies are coming into bloom through July and early August, and the very last entry for the year, on 9 October, records that she 'planted about 40 Lilium regale bulbs from bulblets of last year on Peony ground and 60 in shrub garden. Very small but may flower next year'.

83 Elsie Reford. Rose book for the period 1939 to 1945.
Elsie Reford kept a record of all the roses she planted each year, indicating the name, source, quantity, where they were planted and how they performed. She ordered mainly from two suppliers – T. Ley in Windlesham, Surrey, and E.D. Smith in Winona, Ontario.
On loan from Jardins de Métis

In gardening as in life itself, there is never an end to learning. The garden constantly evolves and each season brings new experiences – both challenges and successes. Gardeners are continually experimenting, continually improving and modifying their technique, continually learning more about plants and their individual preferences and needs. The more we do, the more we learn, and the more there is to learn. Thomas Jefferson put it well, when he said 'But though an old man, I am but a young gardener'.

> A gard'ners work is never at an end; it begins with the year, and continues to the next.
> John Evelyn. *Kalendarium hortense*. London: George Huddleston, 1699.



Rose Manure – Special McGredy Mixture
56 lbs Sulphate of Ammonia
152 " Superphosphate 20%
28 " Bone meal
28 " Sulphate of Potash –

Applied early May and about every 3 weeks from then till end of August.

Tsingers used as spray against disease every 10 days to 2 weeks or as appears necessary

Roses planted May 1939

Purchased from F. Ley, Windlesham, Surrey

4 doz Southport – All did extremely well both in the summer of 1939 & 1940
Planted in Apple Tree Garden
Foliage good.

18 Ellen Willmott
Planted in Long Walk – a very disappointing rose both in colour & quality. about 30% were winter-killed – good foliage

12 Dainty Maid – Planted in Long Walk – very beautiful single rose & though not quite so profuse a bloomer as Else Poulsen – a more delicate & refined rose – The [illegible] is most attractive rose with lovely foliage

24 Clarice Goodacre.
A delightful dainty rose & very profuse bloomer – Only 1% winter kill – healthy foliage

Photo captions

endpapers	leaf and flower forms from folio edition of Miller's *Dictionary*; see item 9
title page	frontispiece of *Catalogus plantarum*; see item 71
p. 4	panoramic postcard of the Dale Estate Conservatories, ca. 1920; courtesy of PAMA: Peel Art Gallery, Museum & Archives
p. 6	photograph of Claude Cormier's Blue Stick garden installation at Jardins des Métis in 2000 by Louise Tanguay; used by permission of the photographer
p. 8	plate depicting the genius of botany explaining to the gardener the characters of plants from John Hill's *Eden*; see item 18
p. 9	rosemary, from Mattioli's edition of *Commentarii*; see item 5
p. 12	woodcuts from Crescenzi's *Ruralia commoda*; also p. 53, p. 120
p. 13	flower forms from William Hanbury's *Complete Body of Planting and Gardening* (London, 1770-1771)
p. 17	title page showing Theophrastus and Dioscorides from Johnson's *Herball*; see item 7
p. 23	title page and frontispiece to *Scriptores rei rusticae*; see item 2
p. 30	illustrated title page to Parkinson's *Paradisi*; see item 8
p. 34	frontispiece to the folio edition of Miller's *Dictionary*; see item 9
p. 38	dust jacket to Chatelaine's *Gardening Book*; see item 15
p. 40	June flowers from John Hill's *Eden*; see item 18
p. 43	petunia, from *Paxton's Magazine of Botany*, vol. 3; see item 22
p. 44	iris, from *Flora and Sylva*, vol. 3; see item 23
p. 47	frontispiece and title page to London and Wise's translation of *The Compleat Gard'ner* (London, 1699).
p. 49	spring grove codlin apple from the RHS *Transactions*, vol. 1; see item 57
p. 54	plate showing the laying out of a new garden from Evelyn's translation of *The French Gardiner*; see item 30
p. 56	back cover of Rennie's seed catalogue; see item 33
p. 59	calceolaria, from *Curtis's Botanical Magazine*, vol. 2; see item 21
p. 60	narcissus from *Flora and Sylva*, vol. 3; see item 23
p. 63	dust jacket to Preston's *Garden Lilies*; see item 40
p. 64	title page to Evelyn's *Sylva*; see item 41
p. 65	plate showing tranport of large trees from Henry Steuart's *The Planter's Guide* (Edinburgh, 1828)
p. 66	lime tree from Hunter's edition of Evelyn's *Sylva*; see item 43
p. 70	Agnes Chamberlin's watercolour drawing of four wild flowers; see item 43
p. 71	plate depicting Britannia receiving the fruits of the earth from nature, industry and science, from the abridged edition of Miller's *Dictionary*; see item 10
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p. 117	a page from Elsie Reford's rose journal; see item 83; courtesy of Alexander Reford

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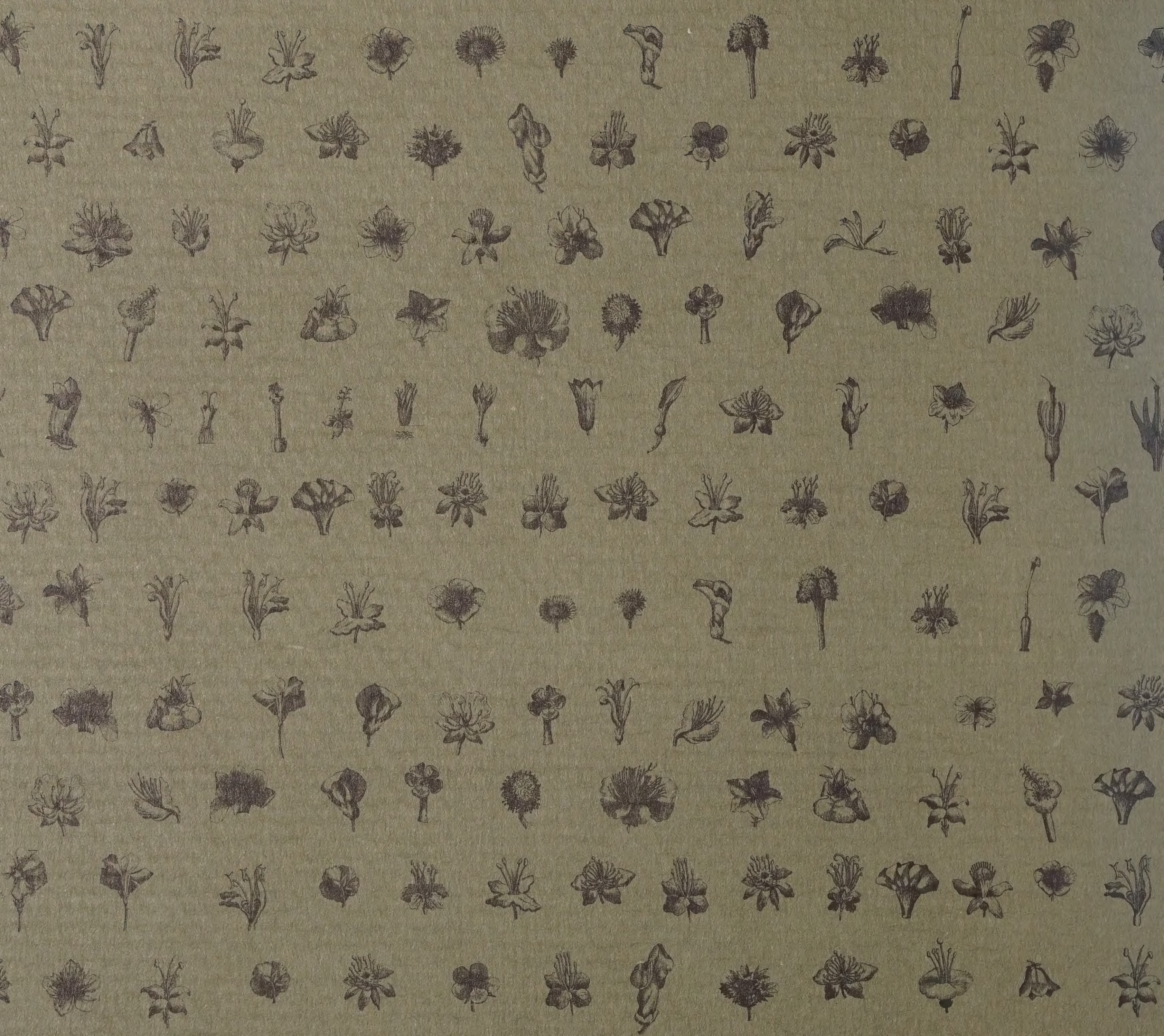

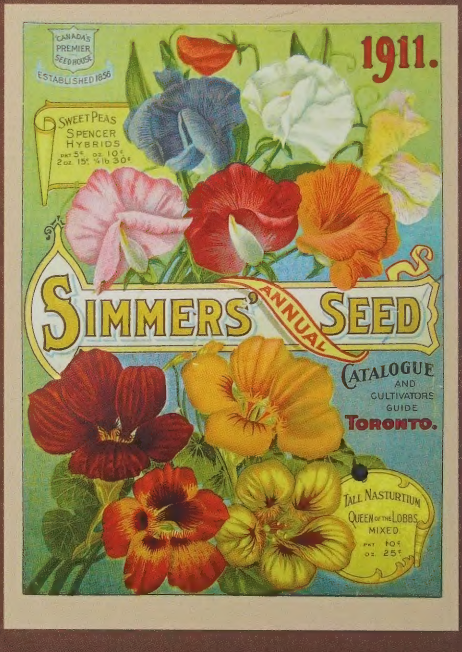
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